



UN5
EE
-C57

ECE/COAL/5

 ECONOMIC COMMISSION FOR EUROPE

**THE  COAL SITUATION IN EUROPE
IN 1972
AND ITS PROSPECTS**



 UNITED NATIONS
New York, 1974

ECE/COAL/5

UNITED NATIONS PUBLICATION

Sales No. E.74.II.E/Mim.4

Price: \$ U.S. 2.50
(or equivalent in other currencies)

United Nations publications may be obtained from bookstores and distributors throughout the world. Consult your bookstore or write to: United Nations, Sales Section, New York or Geneva.

PREFATORY NOTE

1. This document contains a review of the coal situation in Europe and its prospects as seen at the time of writing (summer 1973). It is the fourteenth in a series. 1/
2. In the last issues the European coal situation was analysed in general terms and the common trends and problems were underlined. The 1972 review concentrates, as did the 1971 review, on the situation in the various countries.
3. The study consists of two parts. The first deals, in a concise form, with the demand for coal and the factors which affected demand (general economic activity, competition between the various forms of energy), and with deliveries to the main consuming sectors, production, stocks, productivity and the European trade in solid fuels. The second contains the country monographs.

The following symbols have been used throughout the present study:

..	Figure not available
-	Nil or negligible quantity
*	Secretariat estimate
p	Provisional figure
t	Tonnages are metric
tce	Tons of coal equivalent

1/ The Coal Situation and Prospects in Europe in 1958/59 (E/ECE/366-E/ECE/COAL/144) Geneva, 1959; The Coal Situation in Europe in 1959/60 and Future Prospects (ST/ECE/COAL/5) Geneva, 1961; Ditto, 1961/62 (ST/ECE/COAL/8) Geneva, 1963; Ditto, 1962/63 (ST/ECE/COAL/9) New York, 1964; Ditto, 1963/64 (ST/ECE/COAL/10) New York, 1965; The Coal Situation in Europe in 1964/65 and its Prospects (ST/ECE/COAL/15) New York, 1966; Ditto, 1965 (ST/ECE/COAL/27) New York, 1967; Ditto, 1966 (ST/ECE/COAL/32) New York, 1967; Ditto, 1967 (ST/ECE/COAL/34) New York, 1968; Ditto, 1968 (ST/ECE/COAL/48) New York, 1969; Ditto, 1969 (ST/ECE/COAL/58); Ditto, 1970 (ST/ECE/COAL/62) New York, 1971; Ditto, 1971 (ECE/COAL/2) New York, 1972.

TABLE OF CONTENTS

	<u>Page</u>
I. THE COAL SITUATION IN GENERAL	1
A. WORLD PRODUCTION OF HARD COAL	1
B. GROWTH AND FUEL PATTERN OF ENERGY DEMAND	2
C. FACTORS INFLUENCING THE DEMAND FOR ENERGY AND FOR SOLID FUELS IN PARTICULAR	2
1. General economic factors	2
(a) Western Europe	2
(b) Southern Europe	3
(c) United States of America	3
(d) Eastern Europe and the USSR	3
2. Iron and steel production	3
3. Climatic factors	3
4. Competition between the various sources of energy	4
(a) Western Europe	4
(b) Eastern Europe and the USSR	5
D. INTERNAL DELIVERIES OF SOLID FUELS TO MAIN CONSUMING SECTORS	5
1. Hard coal	5
2. Coke-oven coke	6
E. PRODUCTION, PITHEAD STOCKS AND PRODUCTIVITY	6
1. Production	6
2. Pithead stocks	6
3. Productivity	7
F. THE EUROPEAN TRADE IN SOLID FUELS	7
1. Fall in exports from the United States	7
2. Exports from eastern Europe and the USSR	7
3. Rise in hard-coal imports into the ECE region from the rest of the world	7
4. Appreciable rise in coal prices	8
5. Trade in coke	8
G. SUMMARY AND CONCLUSIONS	9
1. Western Europe and the United States	9
2. Eastern Europe and the USSR	10

TABLE OF CONTENTS (continued)

	<u>Page</u>
II. THE COAL SITUATION IN INDIVIDUAL COUNTRIES	11
A. Germany, Federal Republic of	11
B. Austria	15
C. Belgium	17
D. Bulgaria	21
E. Spain	23
F. United States of America	24
G. France	25
H. Hungary	35
I. Italy	40
J. Netherlands	41
K. Poland	42
L. German Democratic Republic	44
M. Ukrainian Soviet Socialist Republic	45
N. United Kingdom	49
O. Sweden	57
P. Switzerland	59
Q. Czechoslovakia	61
R. Turkey	64
S. Union of Soviet Socialist Republics	65

ANNEX I. TABLES

A. Apparent total consumption of total primary energy in the ECE region
B. Shares of solid fuels and their main competitors in the primary-energy market of the ECE region
C. Internal deliveries of hard coal to some main consuming sectors in western and eastern Europe
D. Production of solid fuels in the ECE region
E. Rate of increase of output per man-year underground in the European hard-coal industry
F. Changes in output per manshift underground (hard-coal mining) in selected countries
G. Underground employment in hard-coal mines
H. European trade in hard coal and patent fuel
I. Trade in coke in the ECE region
J. The western and eastern European hard-coal balances

TABLE OF CONTENTS (continued)

STATISTICAL ANNEX

ANNEX II

Definitions and explanations

1. Apparent consumption of commercial sources of primary energy in Europe, the United States of America and the Union of Soviet Socialist Republics
2. Percentage changes in energy consumption and certain economic indicators
3. Winter temperatures in °C
4. Internal deliveries of hard coal to main consuming sectors in Europe
5. Production of hard coal, brown coal, patent fuel and brown-coal briquettes
6. Output per manshift underground (hard coal)
7. Underground employment in hard-coal mines
8. Stocks of hard coal at pithead in Europe
9. Stocks of coke at coke-ovens and at iron and steel works
10. Trade in hard coal and patent fuel affecting Europe
11. Trade in coke affecting Europe
12. European trade in brown coal and brown-coal briquettes

I. THE COAL SITUATION IN GENERAL^{1/}A. WORLD PRODUCTION OF HARD COAL^{2/}

According to initial estimates, world hard-coal production in 1972 showed an increase of 124.1 million tons over 1971 (+ 1.1 per cent), reaching the record level of 2,208.1 million tons.

This development was due both to the expansion of capacity in the main producing countries - the Union of Soviet Socialist Republics, China, Poland and Australia - and to the normalization of the situation in the United States of America after the strike of 1971.

Expressed in relative terms, the contributions of the various regions of the world to world production are as follows ^{2/}:

	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
Europe (excluding the USSR)	24.3	23.1	23.1	21.2
USSR	22.2	21.7	22.3	22.6
North America	24.8	25.8	24.1	25.4
South America	0.4	0.3	0.3	0.4
Asia	23.3	24.0	25.0	25.1
Africa	2.7	2.7	2.9	2.8
Oceania	2.3	2.4	2.3	2.5
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

A study of the world pattern of hard-coal production reveals the following general features:

1. A rise in production in the North American continent (526.8 million tons in 1971 and 560.4 million in 1972) due to the appreciable expansion in the United States, where production increased from 509.6 million tons in 1971 to 535.2 million tons in 1972;
2. A slight rise in South America (7.6 million tons in 1971 and 7.9 million tons in 1972);
3. In Europe, a slight fall in production (513.0 million tons in 1971 and 477.7 million tons in 1972) with a further drop in production in the six countries members of the European Communities (158.6 million tons in 1971 and 145.8 million tons in 1972) and an appreciable drop in the United Kingdom (141.1 million tons in 1971 and 116.5 million tons in 1972);
4. A rise in production in the USSR (441.4 million tons in 1971 and 451.1 million tons in 1972);

^{1/} United States Department of the Interior, Bureau of Mines, International Coal Trade, 1973.

^{2/} Bureau Européen d'informations charbonnières, Nouvelles et Commentaires, Brussels, 1973.

5. A slight rise in Asia due to an increase in production in China (390 million tons in 1971 and 400 million tons in 1972) and in India (69.2 million tons in 1971 and 73.5 million tons in 1972), although there was a decline in Japan (33.4 million tons in 1971 and 28.1 million tons in 1972);

6. A slight fall in the Republic of South Africa (58.7 million tons in 1971 and 57.9 million tons in 1972);

7. An increase in production in Australia (48.9 million tons in 1971 and 59.6 million tons in 1972).

B. GROWTH AND FUEL PATTERN OF ENERGY DEMAND

According to initial estimates, energy consumption in Europe 1/ in 1972 amounted to 1,937 million tce, an increase of 2.9 per cent as compared with 3.2 per cent in 1971.

Growth rates rose in western Europe, especially in all the countries members of the European Communities of the Six 2/, where the growth of internal energy consumption was again relatively high (3.9 per cent in 1972), following the lower rate recorded in 1971 (1.9 per cent) (table A).

Energy consumption continued to grow in eastern Europe (+ 1.3 per cent) and in the USSR (+ 3.0 per cent).

In the United States, energy consumption again reached a record level in 1972, and its rate of growth seems to have been higher 3/ than in 1971.

Table B shows that the share of coal continued to decline throughout the ECE region, with a corresponding increase in that of petroleum products and natural gas.

C. FACTORS INFLUENCING THE DEMAND FOR ENERGY AND FOR SOLID FUELS IN PARTICULAR

1. General economic factors 4/

(a) Western Europe

In all the industrial countries of western Europe taken together, the gross national product (GNP) rose by about 3.8 per cent in 1972, and industrial production by about 4.4 per cent. These growth rates remain below the average for the last two decades, during which GNP rose by about 4.5 per cent per annum (in 1970 by 5.2 per cent) and industrial production by 5.5 per cent, but are much more favourable than in 1971 when the increase in GNP was about 3 per cent and in industrial production only 2 per cent.

In 1972, the growth of total production showed very marked differences from country to country, Austria and France being the only countries in which GNP increased by 5 per cent or more.

1/ Unless otherwise stated, statistics for Europe exclude the USSR.

2/ Rapport de gestion, Charbonnages de France, 1972.

3/ Including light petroleum products.

4/ The European Economy in 1972 (ECE(XXVIII)/1); The Steel Market in 1972 (STEEL/WP.1/R.1).

(b) Southern Europe

Greece, Portugal, Spain, Turkey and Yugoslavia raised their total production in 1972, the rate of increase being higher than in 1971 in Greece and Spain, very similar to the 1971 figure in Portugal and slightly lower than the 1971 figure in Turkey and Yugoslavia.

(c) United States of America

The national product rose by 6.5 per cent (2.7 per cent in 1971), which is a high rate of increase and very close to the record rate of 1966.

(d) Eastern Europe and the USSR

In the eastern European countries as a whole and in the USSR, economic expansion, as expressed in the growth of national income, was about 5 per cent in 1972, slightly lower than the 1971 figure (6 per cent). This was chiefly due to a slowing down in the expansion of the agricultural sector as a result of the bad weather conditions in some countries.

Figures for industrial production in the socialist countries show that industrial activity registered a slower rate of increase in Bulgaria, Czechoslovakia, Hungary and the USSR. It should be noted, however, that in all these countries a decrease in the rate of expansion had been envisaged in the national plans. Industrial production rose appreciably, at higher rates than in 1971, in the German Democratic Republic (6.3 per cent), Poland (10.8 per cent) and Romania (11.7 per cent), in each case exceeding the targets.

2. Iron and steel production

(a) Steel production

These general economic trends in 1972 resulted, for the world as a whole, in a considerable increase in steel consumption and production; crude steel output is estimated to have been close on 630 million tons, 8 per cent more than in 1971 and 5 per cent above 1970, the previous record year. The increases over 1971 in the different regions and countries were as follows: 9.1 per cent in western Europe; 4.9 per cent in eastern Europe; 10.4 per cent in North America; 9.4 per cent in Japan; and 9.5 per cent in China; the developing countries taken together produced 12.5 per cent more crude steel than in 1971. International trade in steel is estimated to have been at about 93 million tons, which is about the same level as for 1971 (STEEL/WP.1/R.1/Add.1).

3. Climatic factors

The ECE Coal Committee's Group of Experts on Coal Statistics has undertaken a study on the influence of temperature on the consumption of coal. In particular, investigations have been made into the correlation between temperature variations and coal consumption in the following sectors:

- households 1/
- industry and transport 2/
- power stations 3/

This study has not yet been completed, but the results obtained so far show that the influence of meteorological conditions on coal consumption in industry, transport and power stations is slight in comparison with other factors, or is difficult to define. On the other hand, their influence in the household sector is very marked. It is very difficult to establish precise relationships leading to practical conclusions; work on the problem is to be continued because the collection of representative statistics is complicated by marginal factors such as the incidence of atmospheric conditions other than temperature (sunlight, humidity, wind and snow), personal behaviour (increase in comfort, variation of purchasing power), changes in housing, heating methods and population (migration towards cities).

4. Competition between the various sources of energy

(a) Western Europe 4/

In the countries of the European Communities, the general upturn in economic activity led to an appreciable increase in primary energy consumption in 1972, as compared with 1971.

In the Community of the Six, this increase, which had been relatively slight in 1971 (about 2 per cent), amounted to 4 per cent in 1972, and primary energy consumption reached 900 million tce. The largest increase was in the consumption of gas, which rose by more than 20 per cent, while that of crude petroleum rose by about 5.5 per cent. The consumption of coal, however, decreased by 11 per cent.

This development is due more to structural trends than to the general economic situation.

The information received shows that the prices of coal, fuel oil and natural gas are still rising.

The energy policy currently pursued by most of the coal-producing countries of western Europe is in fact marked by a phasing out of the coal industry, regulated by subsidies and, at least in the medium-term, irreversible.

1/ COAL/GE.2/R.3

2/ COAL/GE.2/R.1

3/ COAL/GE.2/R.5

4/ Glückauf 109, No. 13, 1973.

In 1972, the number of mines closed in the enlarged Community was as follows:

	<u>Number</u>	<u>Production</u> <u>in 1971</u> (in 000 t)
Germany, Federal Republic of	5	3,522
Belgium	1	139
France	5	1,958
United Kingdom	7	1,100
	<u>18</u>	<u>6,719</u>

In the coal-producing countries of the European Communities taken as a whole, considerable assistance has been given to the coal industry and various support measures have been adopted by Governments.

While coal production in the Community (of the Six) in 1972 was 8.2 per cent lower than in the preceding year, subsidies granted to the coal industries of the member countries increased by 15.5 per cent. The aid given has, in certain cases, even reached 22.9 per cent per ton produced. 1/

Large variations in demand are being covered by imports and by drawing on pit-head stocks built up when production is in surplus.

By contrast, the problem of the quality and price of energy seems to be gaining in importance, particularly as a result of the serious restrictions that are beginning to be imposed in the interests of environmental protection (for example, in the United States).

(b) Eastern Europe and the USSR

The general picture in these countries is one of a steady increase in coal production but a decline in the relative importance of coal in energy balances. In view of the rapid development of motorization during the next few years petroleum and its products are likely to play an increasing role.

Another important item in the energy policy of eastern Europe and the USSR is the carrying out of studies on the possibility of joint investment in coal-mining development with a view to increasing production in the years to come. 1/

D. INTERNAL DELIVERIES OF SOLID FUELS TO MAIN CONSUMING SECTORS

1. Hard coal

In western Europe, total deliveries of hard coal dropped by 10.8 per cent (40.3 million tons). The largest reductions were in deliveries to industry and thermal power stations.

1/ Charbonnages de France, Revue de presse étrangère, Paris, 10 May 1973.

In eastern Europe, deliveries showed an increase of 2.1 per cent (a similar figure to that of 1971). Thermal power stations, which still represented one of the chief consuming sectors (26 per cent of the total), recorded the largest increase in 1972 (11.9 per cent).

2. Coke-oven coke

For 1972 as a whole, the apparent consumption of coke in western Europe increased less rapidly than the production of steel in general. This influenced the domestic market; deliveries dropped by 5.7 per cent compared with 1971 (table C).

E. PRODUCTION, PITHEAD STOCKS AND PRODUCTIVITY

1. Production

The production of hard coal in Europe decreased by 35.3 million tons, or 6.9 per cent. As in the past, it continued to rise in eastern Europe (+ 2.7 per cent) and to decline sharply in western Europe (- 12.4 per cent), primarily due to the structural phasing-out of the coal industry.

The USSR increased its production by 2.2 per cent. In the United States, production increased by 5 per cent as a result of the return to normal conditions mentioned above. In 1972, the ECE region as a whole supplied 64 per cent of world production.

Output of brown coal rose by 4.3 per cent in western Europe and decreased by 1.8 per cent in eastern Europe. The ECE region as a whole supplied nearly 95 per cent of world production of brown coal.

Production of coke declined in western Europe (- 5.3 per cent), while it increased in the United States (+ 1.9 per cent). In eastern Europe it rose by 5.4 per cent and in the USSR by 1.9 per cent. Specific coke consumption continued to fall in most countries.

For the six countries of the Community it fell from 562 kg in 1971 to 537 kg; the best values were obtained in the Netherlands (457 kg) and in the Federal Republic of Germany (487 kg). Similar trends obtained in Japan, where a figure of 442 kg was reached. In the United Kingdom specific coke use fell from 610 kg in 1971 to 580 kg in 1972. The reasons for this development are well-known: advances in charge preparation; use of largrer and more modern blast furnaces; higher rate of fuel injection, etc. (table D). 1/

2. Pithead stocks

In western Europe, pithead stocks rose from 24 million tons on 31 December 1971 to about 28 million tons on 31 December 1972 (9.7 per cent of production). Coke stocks also increased, rising from 8 million to nearly 12 million tons in the countries members of the enlarged European Communities.

In eastern Europe, pithead stocks were 4.2 million tons at the end of 1971 and have shown little change, being 3.5 million tons at the end of December 1972 (1.8 per cent of production).

3. Productivity

Productivity in the European hard-coal industry, calculated from the man-year output (underground), was appreciably lower than in 1971 (- 6.7 per cent). The decrease in the underground labour force was 6.1 per cent for Europe as a whole.

The increased output in certain eastern European countries (Romania) was obtained with almost the same manpower and is therefore entirely due to an increase in productivity (tables E, F and G).

F. THE EUROPEAN TRADE IN SOLID FUELS

The hard-coal trade in the ECE region continued to decline in volume.

The total volume of imports into the countries of Europe fell in 1972 by 2.4 per cent, as against a drop of 6.1 per cent in 1971, while that of exports increased by 0.9 per cent, as against a drop of 2 per cent in 1971.

East-West trade remained stationary as regards exports to eastern Europe, while exports from countries of eastern Europe to western Europe rose by 7 per cent.

The main features of the pattern of trade in 1972 were:

- a fall in exports from the United States;
- a fall in exports from the USSR;
- a further rise in exports from eastern Europe;
- a fall in exports from western Europe;
- a rise in coal imports into the ECE region from the rest of the world;
- an appreciable rise in the price of exported coal.

1. Fall in exports from the United States

According to initial estimates, total coal exports from the United States in 1972 amounted to 51.5 million tons or 0.5 million tons less than in 1971. Canada was the principal buyer, taking 32.9 per cent of United States exports. Japan came second, taking about 18 million tons, 8.5 per cent less than in 1971 (31.8 per cent). Exports to South America, at 2.7 million tons, were slightly lower than in 1971.

Exports to Europe were 15 million tons (- 10.2 per cent).

The total value of coal and coke exports was 7 per cent greater than in 1971 (US \$1,019 million).

2. Exports from eastern Europe and the USSR

Exports from eastern to western Europe rose by 2.5 per cent. Poland's exports to the rest of the world showed an appreciable rise both in volume and in value. Total exports of hard coal from that country in 1972 are estimated at 32.7 million tons, 7.8 per cent more than in 1971.

Exports from the USSR to western Europe fell by 1.9 per cent.

3. Rise in hard coal imports into the ECE region from the rest of the world

Total exports from Australia, which in 1966/1967 amounted to 8.73 million long tons, rose to 25.8 million tons in 1972/1973, an increase of 15.3 per cent over

1970/1971, with 2.56 million tons of these exports going to Europe (3.36 million tons in the previous year). Receipts (f.o.b.) from coal exports amounted to US \$282.4 million, as opposed to US \$232.1 million in 1970/1971.

Nearly all exports of hard coal from Canada (7.73 million tons in 1971 and 8.51 million tons in 1972) went to Japan (7.4 million tons in 1971 and 8.3 million tons in 1972).

The volume of exports to Belgium and the United Kingdom increased, while there was an almost complete cessation of exports to the other countries of Europe and a decrease in exports to the United States.

Total exports from South Africa fell from 1.44 million tons in 1971 to 1.24 million tons in 1972 and consisted mainly of anthracites (698,000 tons in 1972) (tables H and I).

4. Appreciable rise in coal prices

In 1972, there was a general increase in prices of exported coal, varying from 5 to 10 per cent according to the country, due to the rise in the main export market: the United States. The rise was especially marked for coking coals; the average price of coking coal imported by the European iron and steel industry increased by US \$2 per ton, levelling off at US \$25.5 at the beginning of 1973.

The latest contracts for good quality coking coal concluded with the Japanese iron and steel industry were based on an ex-East Coast price of about US \$24 to \$25 per ton. 1/

On the European market, however, the effects of this price rise were offset by the fall in value of the dollar in terms of European currencies.

5. Trade in coke

In 1972, the volume of intra-European trade in coke (excluding the USSR) showed little change in comparison with 1971 (+ 0.9 per cent). Coke imports by western European countries from eastern Europe increased by 6.3 per cent. Coke stocks in the hands of producers in the countries members of the enlarged European Communities rose to 12.30 million tons at the end of December 1972, as compared with 8.32 million tons at the end of December 1971. The prices of smelting coke in the Communities increased by 70 to 80 per cent over the period 1967-1972.

In 1972, coke prices generally continued to rise (along with the prices of other fuels and of electricity).

The average prices of smelting coke exceeded the average 1971 prices by 6 per cent in France and 8.9 per cent in the Federal Republic of Germany.

G. SUMMARY AND CONCLUSIONS

1. Western Europe and the United States

After a marked slowing down in 1971, the economic upswing which had prevailed in western Europe for several years continued during the year 1972, which was characterized by rapid economic expansion in all the countries of western Europe, in North America and Japan. In most of the market economy countries, except perhaps in the United States, inflationary tendencies persisted, and wages and prices rose rapidly in spite of the direct and indirect measures taken by the Governments.

The GNP 1/ of the principal western European countries, calculated in terms of constant prices, which had risen by only about 3 per cent during 1971, showed increases ranging from 4.3 per cent (Italy) to 6.3 per cent (United Kingdom), reaching a weighted average of about 5.3 per cent for the subregion as a whole. The GNP in the United States was up by 6.5 per cent (as compared with 2.7 per cent in 1971) - a high rate of increase, close to the record rate achieved in 1966. In Japan, GNP increased by about 9 per cent in 1972 as compared to 6.7 per cent in 1971; this increase remains, however, much below that of earlier years (+ 14.4 per cent in 1968; + 12.1 per cent in 1969; + 11.2 per cent in 1970).

In addition to general economic growth, two other factors have also had a major influence on the coal situation: the fear of a future energy shortage, and the rise in energy prices, together with in a lesser degree, measures taken to prevent environmental pollution.

The risk of a general energy crisis has become an international problem. The countries of western Europe, most of which do not possess large sources of primary energy, especially of petroleum and gas, are in danger of becoming unduly dependent on outside sources. Whereas the Communities (of the Six) had depended on such sources for 40 per cent of energy supplies in 1962, this figure rose to 62 per cent in 1972 2/ and there is no indication of a change in this trend in the future.

In some countries (France, for instance) social considerations stand in the way of any Government decision for the early abandonment of coal production, even though it has become uneconomic.

Coal problems are therefore becoming urgent and stimulating Governments to adopt a policy of financial assistance to coal industries in order to halt the decline in production and the closing of mines.

1/ ECE Steel Committee (STEEL/WP.1/R.1/Add.1)

2/ Rapport de gestion, Charbonnages de France, 1972

As a result, State subsidies to the coal industry in the countries of the Communities (of the Six) showed an increase of more than 20 per cent over 1971.

The western European coal industry is characterized by a continuous and structural decline in hard coal output (- 12.4 per cent in 1972, - 0.8 per cent in 1971 and - 4.6 per cent in 1970) and an increase in brown coal output (+ 4.3 per cent in 1972 and + 1.6 per cent in 1971). In 1972, the decline in underground manpower (from 0 to 14 per cent according to country) was less rapid than the decline in output.

Despite improved efficiency, production costs in the six countries of the Community increased by 6 to 7 per cent. Hard coal stocks in the main producing countries of western Europe rose by 17 per cent at the end of December 1972 (3.8 million tons more than at the end of 1971).

Imports fell generally by 2.1 per cent, those into the United States being almost 10 per cent lower than in 1971. Imports from Poland into the countries of western Europe as a whole continue to expand (+ 9.5 per cent).

Imports from other regions expanded considerably (+ 35 per cent), in spite of the decline in imports from Australia.

2. Eastern Europe and the USSR

In eastern Europe, economic activity, particularly in the industrial sector, again increased in comparison with 1971.

In 1972, as in 1971, coal output continued to increase; in Poland hard-coal output reached 150.7 million tons, 3.6 per cent more than in 1971; brown-coal output was 38.2 million tons, or 3.7 per cent more than in 1971; in Czechoslovakia, the output of hard coal fell by 3 per cent and that of brown coal increased slightly, by 0.8 per cent; in Romania, coal output is expanding very rapidly (in 1972 it was 14 per cent higher than in 1971). As stated above, the coal industry expansion policy in most of these countries is at present based on a numerically-stable labour force, the increase in output being chiefly due to a continuing improvement in productivity. Exports from eastern to western Europe showed an increase of 7 per cent over 1971.

The total value rose substantially because of the general rise in the prices of exported coal.

The Soviet Union's coal output rose by 2.2 per cent; total exports remained at their 1970 level of 24 million tons, but exports to Europe fell by 1.9 per cent.

II. THE COAL SITUATION IN INDIVIDUAL COUNTRIES

A. FEDERAL REPUBLIC OF GERMANY

1. Increase in primary energy consumption in 1972

Following the boom years, 1969 and 1970, economic development in the Federal Republic slowed down in 1971. The real GNP growth rate was 2.7 per cent.

The average growth rate in primary energy consumption paralleled the overall economic growth rate over the past 10 years, and it accordingly showed very little change (+0.8 per cent) in 1971, as a result of the overall slowing down. However, this situation affected individual energy sources differently.

In the second half of 1972 there was an economic upsurge and the gross national product rose by 3 per cent.

Primary energy consumption rose still more (+4.4 per cent) and exceeded the overall economic growth rate. All energy sources shared in this increase except hard coal, where there was again a reduction in consumption (7.3 per cent). Its share in total primary energy consumption still came to 23.6 per cent. The percentage of brown coal remained almost unchanged at 8.7 per cent, while that of mineral oils increased to almost 55.4 per cent.

2. The hard coal position in 1972

The decline in sales continued in 1972: over the year, 100.8 million tons of coal were sold as against 108.8 million tons in 1971. Practically all consumer sectors were involved in this reduction.

Production of crude steel increased slightly in 1972, but did not again reach the 1970 peak (43.7 million tons of crude steel in 1972 compared with about 45 million tons in 1970). As the decrease in specific coke consumption continued (486 kg/t of pig iron against 520 kg/t of pig iron in 1971), sales of coking coal to the iron and steel industry again declined, by nearly 1 million tons. For the first time, coal deliveries to the electricity generating industry declined too. The reduction in sales to other consumer sectors continued, as a result of structural changes.

Despite this reduction in sales, hard coal was still in 1972, with a share of about 35 per cent in total electricity generation, by far the most important energy source. The steel industry covered all its coking coal requirements from domestic sources and the steel industry in the EEC countries met nearly two-thirds of its total demand with German coking coal.

The production of hard coal fell substantially in the course of 1972 to a total of 102.5 million tons, about 8 million tons below the level of previous years. Despite this massive restriction of output, pit-head stocks continued to increase and reached 16.2 million tons by the end of 1972. This increase in stocks involved a considerable further financial burden on the mining companies.

With the economic upsurge, the rate of inflation also accelerated, resulting in a further deterioration in the competitiveness of hard coal through increases in wages and in the selling price of the product. In addition, the fluctuations in foreign

exchange rates at the end of 1971 produced their full effect in the course of the year. In February 1973 the US dollar was devalued by 10 per cent and in March 1973 the German mark was revalued by 3 per cent. This meant that the competitive position, owing to the decline of the dollar, had deteriorated since 1969 by about 42 per cent, directly affecting nearly half the total sales of German coal.

On the other hand, the mining industry succeeded in increasing its productivity (output per manshift underground) by about 5 per cent in 1972. With an O/MS (underground) of 4,250 kg., the coal-mines of the Federal Republic rank first among the European coal-producing countries. The annual increase in output per manshift was sufficient to cover the increases in wages and other costs and keep prices stable until about 1968. The measures initiated for combating inflationary trends are, therefore, warmly welcomed by the industry as their success will be decisive in improving the competitiveness of hard coal in the Federal Republic.

3. Prospects

More rapid economic growth is expected in 1973, with a real growth rate between 6 and 7 per cent. Primary energy consumption should increase at about the same rate.

The competitive position of hard coal was again worsened by further changes in foreign exchange rates at the beginning of 1973, with particularly ill effects on the market for coking coal. On the fuel market, however, oil prices have been rising for some time and the result is a reduced price difference as against boiler coal.

The steel industry is expected to reach a new production peak in 1973, with an output of 48 to 50 million tons of crude steel. The consumption of coking coal should be about 25 million tons, so there will be an increase in the sales of coking coal as against 1972.

The growth rate in primary energy consumption is below the growth rate in electricity generation, which doubles about every 10 years. The consumption of hard coal in this sector should in 1973 be only a little less than in 1972, although no new coal-fired power plants were brought into operation.

To promote coal-firing in new plants, the Federal Government has announced new regulations to promote coal sales for electricity generation. The objective is to build new coal-fired power plants of 6,000 MW capacity by 1978, with an expected annual consumption of about 6 million tons of hard coal.

In 1973, the production of hard coal in the Federal Republic is expected to fall below 100 million tons for the first time.

In view of the present development trends on the world energy market and the high dependence of the Federal Republic on energy imports, the Government is now preparing a new energy programme in which hard coal will assume an important place.

Table 1
Primary Energy Consumption in the Federal Republic of Germany

Energy Source	1970	1971	1972	Changes against previous year	
				1971	1972
				in %	
	1000 tons hard coal equivalent				
Hard coal	96 848	90 317	83 744	- 6.7	- 7.3
Brown coal	30 583	29 326	30 957	- 4.1	+ 5.6
Mineral oil	178 858	185 703	196 351	+ 3.8	+ 5.7
Natural gas, mineral oil gas	18 073	23 614	30 106	+30.7	+27.5
Methane, gas from clarifying plants, balance coke-oven gas from foreign trade	218	390	493	+78.9	+26.4
Hydro-electricity, balance electricity from foreign trade	8 368	6 412	8 000	-23.4	+24.8
Nuclear energy	2 092	1 976	3 061	- 5.5	+54.9
Firewood, peat	876	843	793	- 3.8	- 5.9
Other energy sources ^{1/}	846	850	940	+ 0.5	+10.6
Total	336 762	339 431	354 445	+ 0.8	+ 4.4

^{1/} Slurry from clarifying plants, rubbish, waste heat and steam recovered for electricity generation.

Table 2
Hard Coal 1971/1972

Designation	Measuring Unit	1971	1972
Output of hard coal (tons of disposable output)	000 t	110.8	102.5
Total sales from domestic production ^{1/}	"	108.8	100.8
Iron and steel industry	"	42.0	39.7
domestic	"	23.1	22.3
other EEC	"	18.9	17.4
Power plants	"	38.6	36.2
Other sales	"	28.2	24.9
Stocks ^{2/} of which:	"	9.5	16.2
hard coal and h.c. briquettes	"	4.3	7.7
h.c. coke	"	5.2	8.5

^{1/} Hard coal coke converted into hard coal

^{2/} At year end

Table 3
Brown coal 1971/1972

Designation	Measuring Unit	1971	1972
Production of brown coal	000 t	104.5	110.4
Sales from domestic production			
Raw brown coal	"	82.3	90.7
Brown coal briquettes	"	7.5	6.6

B. AUSTRIA

1. Introduction

The winter of 1972 was mild but rather dry, resulting in additional fuel demands from the thermal power stations. An increase in industrial activity of 7.9 per cent raised total energy demand by 6.7 per cent. As energy was available in sufficient quantities, the additional requirements could be met without difficulty. However, structural changes in the consumption pattern continued, in the form of a further substitution of other types of energy for solid fuel, in the domestic sector in particular.

Deliveries of solid fuel for consumption were 5.1 per cent above the 1971 level, but its share in the total energy supply fell from 19.9 per cent to 19.6 per cent. There was an increase of 5.3 per cent in the consumption of refinery products, but their share fell from 46.3 to 45.6 per cent. Against this, the share of natural gas increased slightly, from 14.1 per cent to 14.2 per cent, and the share of hydro-power rose from 19.7 to 20.6 per cent with an increase in imports and decline in exports, the consequence of poor hydraulic conditions.

2. Demand

Rainfall in 1972 was 15 per cent lower than in 1971, although temperatures hardly varied, the total of degree-days being only 1.1 per cent higher.

The total demand for hard coal (about 66,400 tons) was 2.4 per cent higher in 1971 through additional demand for coking coal (+ 119,900 tons) and from district heating plants (8,700 tons). Consumption in other sectors declined, however. The demand for brown coal was higher by 11.6 per cent than in the preceding year, but production was only 3,755,500 tons, 0.4 per cent less than in 1971. Scales of Austrian brown coal fell by 2 per cent. Pit-head stocks increased to 233,300 tons and stocks at thermal power stations rose by 147,900 tons to 952,600 tons at the year end. Stocks at district heating plants were 101,300 tons at the end of the year, of which 33,400 tons represented 1972 deliveries.

Compared with the preceding year, the demand for brown coal from the district heating plants rose by 45,200 tons and from thermal power stations by 241,900 tons, but it declined for industry as a whole (-103,700 tons), the domestic sector (-96,700 tons) and transport (-16,200 tons).

Although the domestic demand for coke was lower by 0.3 per cent, total demand rose by 0.3 per cent against 1971. The demand for Austrian coke fell by 1.5 per cent while imports rose 3.6 per cent. In the transport sector, solid fuel consumption declined by 12.6 per cent against 1971. The decline was in the demand for hard coal and brown coal, while coke gained ground.

The demand from thermal power stations rose by 34.6 per cent, but the public utilities reports showed that production of thermal energy increased by only 1.3 per cent altogether and brown coal consumption for electricity production declined by 10.7 per cent against 1971, in spite of the poor hydraulic conditions.

Fuel deliveries to district heating plants were 16 per cent above the 1971 level.

Hard coal deliveries to coking plants rose by 5.5 per cent through a rise in over-all coke production. Industrial demand was 1.1 per cent lower than in 1971. Brown coal was the fuel most affected by the process of substitution, while the demand for coke was firmer.

The relatively mild weather and above all, a more marked trend in the changeover to the use of other forms of energy caused a continuing decline in demand from the domestic sector, amounting to 8.5 per cent.

3. Supply

Austria is entirely dependent for its hard coal supplies on imports.

The decline in Austrian brown coal production will continue, but at a slower rate.

Brown coal briquettes have to be imported while dried brown coal is domestically produced. Production of coke from imported hard coal covered about 63 per cent of total coke requirements.

4. International trade

Hard coal was imported from Poland, the USSR, Czechoslovakia and to a smaller extent, from the Federal Republic of Germany and other countries. Brown coal imports had to be trebled to satisfy the increasing requirements of the thermal power stations. Imports of brown coal briquettes were 7.9 per cent lower than in 1971.

Coke was imported from Czechoslovakia, Poland, the Federal Republic of Germany, the USSR and in smaller quantities from other countries. Coke exports rose considerably through the slackening of domestic demand.

5. Long-term trends in the supply of and demand for coal

The situation in the year under review is characterized by a slight recovery, in absolute value, of the coal supply, but in spite of this the share of solid fuels in the total energy supply again declined by 0.3 per cent. In contrast, there was a marked increase in the demand for gas-oil (39 per cent) and liquid gas (10 per cent); there was a slight weakening in the demand for light fuel oil (-3.2 per cent).

The increase was particularly marked in the case of natural gas, with an increase in domestic production (3.8 per cent) and in imports (14.4 per cent) giving a total increase in the supply of 7.2 per cent. The greatest increase in the consumption of natural gas was among small consumers (82 per cent), district heating plants (62 per cent) and in industry (14 per cent).

There are no positive signs to suggest that in the long-term there is likely to be any reversal of present trends to the advantage of solid fuel; but in view of the country's growing dependence on imports for its supplies, the outlook will depend on availabilities and world market prices, factors that are at present in a state of flux.

C. BELGIUM

1. Production

In 1972 hard coal production fell by 460,000 tons or 4.2 per cent, compared with 1971. This over-all decline, however, affected only the Sud coal-field, where production amounted to only 3,176,000 tons against 3,651,000 tons in 1971; whereas in the Campine it remained at practically the same level as in the previous year, with 7,324,000 tons as against 7,309,000 in 1971.

This relative stabilization of production in the Campine basin - of coking coals - is to some extent theoretical in view of the production losses, which can be estimated at 295,000 tons, due to strikes in 1971.

In the Sud, on the contrary, the reduction of output was due not only to the closing during the year of two collieries with a production capacity of approximately 260,000 tons, but also to a reduction by some 3.6 per cent of output per underground manshift.

The reduction in the numbers employed continued in 1972 in both the Campine and the Sud coal-fields. The number of underground workers on the payroll (excluding foremen and supervisors) fell from 23,479 at the end of 1971 to 21,881 at the end of 1972, i.e., by 1,598 workers or 6.8 per cent.

For the whole country, output per underground manshift (excluding foremen and supervisors) slightly increased as compared with the previous year: 2,638 kg against 2,623 kg in 1971.

At the end of 1972 twenty collieries were in operation in Belgium: five in Campine and fifteen in the Sud.

The financial situation of Belgian mining undertakings deteriorated sharply in 1972 and the gap between income and production costs increased considerably. Colliery income fell by about 4.5 per cent, more in the Sud than in the Campine, while production costs continued to rise as a result of the additional wage costs due to the social welfare programme and to the tying of wages to the price index for consumer goods.

Colliery losses therefore still have to be covered by the subsidies granted by the Belgian Government under its coal policy.

2. Imports

The table below shows that total coal imports amounted in 1972 to 6,204,000 tons, a rise of 922,000 tons (17.5 per cent) over the previous year's figure:

	1972	1971	(thousand t) Difference	
			Tonnage	%
ECSC	3 356	3 534	- 178	- 5.0
Non-member countries	2 848	1 748	+ 1 100	+ 62.9
Total	6 204	5 282	+ 922	+ 17.5

As can be seen, this increase, which is due to increased demand from coke ovens for coking coals and to the commissioning of a new coking plant, affects only the quantities imported from non-ECSC countries.

Among these the United States of America and Poland, traditional suppliers of coking coals to Belgium, markedly increased their deliveries, and for the first time supplies from Australia and Czechoslovakia appeared on the Belgian market.

3. Internal sales

Deliveries of Belgian and imported coal from all sources to the internal market amounted to 16,258,000 tons, an increase of 547,000 tons or 3.5 per cent over 1971; previously they had been falling steadily for a number of years.

This situation, however, does not mean a reversal of the previous trend; it is in fact due solely to the increase in deliveries of coking coal to coke ovens. In addition, the structural decline slowed down considerably in two of the largest consumption sectors.

The table below shows the trends in the main consumption sectors:

	1972	1971	(thousand t) Difference	
			Tonnage	%
Consumed at the mine	115	133	- 18	- 13.5
Allowances to miners	210	238	- 28	- 11.8
Mine power stations	777	768	+ 9	+ 1.2
Coke ovens	9 363	8 494	+ 869	+ 10.2
Patent fuel plants	460	530	- 70	- 13.2
Public power stations	2 007	2 050	- 43	- 2.1
Railways	14	22	- 8	- 36.4
Industry	515	619	- 104	- 16.8
Household sector	2 797	2 857	- 60	- 2.1
Total	16 258	15 711	+ 547	+ 3.5

4. Coke ovens

The increase in deliveries to coke ovens was mainly due to the high level of activity in the iron and steel industry and to the commissioning of a large coke production unit (SIDMAR).

Production of blast-furnace coke at 7,265,000 tons was 7.1 per cent higher than the 1971 figure of 6,783,000 tons.

Deliveries of Belgian and imported coke to the internal market amounted in 1972 to 7,786,000 tons against 7,203,000 tons in 1971, an increase of 583,000 tons or 8.1 per cent.

Of these quantities, the tonnages delivered to the iron and steel industry amounted in 1972 to 7,294,000 tons against 6,638,000 tons in 1971, an increase of 656,000 tons or 9.9 per cent.

Crude steel production amounted in 1972 to 14,530,000 tons against 12,445,000 tons in 1971, an appreciable increase of 2,085,000 tons, 16.8 per cent.

After a slack year, therefore, the market for coking coals can be said to have been very active during 1972.

5. Power stations

Coal deliveries to power stations face competition from petroleum products and natural gas, but fell only slightly in 1972. They amounted to 2,007,000 tons against 2,050,000 tons in 1971, a fall of about 43,000 tons, 2.1 per cent.

The reason is that these deliveries are related to the availability of Belgian low-grade products, which in 1972 did not decline as sharply as in the previous year.

6. Households

The market for household coal was much less depressed than in 1971. Sales to households amounted to 2,797,000 tons against 2,857,000 tons in the previous year, a decline of 60,000 tons or 2.1 per cent.

Thus the rate of decline, which in the previous year had attained the exceptional level of 26.3 per cent, has under practically identical climatic conditions been restored to a more normal rate, mainly owing to the firmness of the market during the second half of 1972.

Despite an abnormally mild winter, the rate of decline in the first three months of 1973, compared with the same period of 1972, remained at approximately 3.7 per cent, i.e., within normal limits.

7. Exports

Exports, which now represent only a limited tonnage, rose slightly in 1972 as compared with 1971, as can be seen from the table below; the increase, which only concerned non-ECSC countries, amounted to 31,000 tons or 8.2 per cent:

	1972	1971	(thousand t) Difference	
			Tonnage	%
ECSC	375	373	+ 2	+ 0.5
Non-member countries	33	4	+ 29	+ 7.25
Total	408	377	+ 31	+ 8.2

8. Stocks

Pithead stocks of hard coal increased by some 72,000 tons to 472,000 tons at the end of 1972.

The breakdown by quality of those stocks at the end of 1972 was as follows:

	(thousand t)		
	end 1972	end 1971	Difference
Graded anthracites, anthracites b and lean	10	15	- 5
Anthracite fines, anthracites b and lean	48	53	- 5
Fines and graded sizes: A and B bit.	339	217	+ 122
Fines and graded sizes: 3/4 and 1/2 bit.	-	1	- 1
Low-grade products (all classes)	75	114	- 39
Total	472	400	+ 72

Some statistics on the situation in 1972 concerning oil and natural gas, which are the main sources of energy competing with coal in Belgium, are given below:

9. Inland deliveries of oil energy products

	1972 (provisional figures)	1971	(thousand t) Difference	
			Tonnage	%
Gas oil and light fuel oil	8 961	8 065	+ 896	+ 11.1
Residual fuel oil (including pitch)	9 532	8 922	+ 610	+ 6.8
Total	18 493	16 987	+ 1 506	+ 8.9

10. Imports of natural gas

Tcal (gross calorific value)	
1966	733
1967	4 228
1968	11 198
1969	23 629
1970	37 740
1971	52 373
1972	63 400

D. BULGARIA

1. General view of the situation in 1972 and consumption (Table 1)

In keeping with the trends observed over the period 1968-1972, total consumption of solid fuel rose from 12.4 million tons of coal equivalent in 1968 to 13.3 million tons in 1972; the share of domestic compared with imported coal fell from 74.8 per cent in 1968 to 61.32 per cent in 1972. In the domestic coal supply, the share of lignite increased at the expense of brown coal, while the share of hard coal and anthracite remained practically constant.

State industry accounted for the bulk of total consumption - 84.6 per cent in 1972 against 78.1 per cent in 1968. This increase was almost entirely due to the increase in electric power and heat production (48.3 per cent against 43.4 per cent) and in iron and steel production (16.1 per cent against 11.8 per cent). The share of transport in total consumption was insignificant: 3.1 per cent in 1972 against 4.2 per cent in 1968. The share of marketable stocks (household sector) fell progressively from 15.2 per cent in 1968 to 10.7 per cent in 1972, when the proportion of lignite briquettes remained constant at about 4.3 per cent of total consumption.

Imports of energy coal (hard coal and anthracite) were mainly used for the production of electric power and heat and in the chemical and cement industries. All imported coking coal is used for the production of metallurgical coke.

Table 1

TOTAL CONSUMPTION OF SOLID FUELS
IN BULGARIA IN 1972 (DOMESTIC AND IMPORTED)

INDICATORS	Total consumption, 1000 t	
	1968	1972
Natural fuel	32 863.2	33 256.5
Coal equivalent	12 360.3	13 272.6
1. BREAKDOWN OF TOTAL CONSUMPTION (COAL EQUIVALENT) BY SECTORS (percentages)		
Sectors	1968	1972
State industry	78.1	84.6
including -		
(a) Electric power and heat	43.4	48.3
(b) Iron and steel industry */	11.8	16.9
(c) Chemical industry	5.9	7.4
(d) Building materials	4.8	4.5
(e) Cellulose and paper industry	2.1	1.8
(f) Food industry	3.6	2.4
(g) Transport	4.2	3.1
(h) Household **/	15.2	10.7
*/ Including coking coal:	1968	1972
Natural fuel, in 1000 t	1 068.3	1 880.0
**/ Including lignite briquettes:	1968	1972
Natural fuel, in 1000 t	854.7	880.9
Coal equivalent, in 1000 t	531.1	563.1
Percentage of total consumption (coal equivalent)	4.3	4.2
2. BREAKDOWN OF TOTAL CONSUMPTION (COAL EQUIVALENT) BY TYPE OF COAL (percentages)		
Type of coal	1968	1972
Domestic production	74.8	61.3
of which:		
(a) Brown coal	30.2	21.4
(b) Lignite	41.8	37.9
(c) Hard coal and anthracite	2.8	2.0
Imports		
(hard coal (bit.) and anthracite)	25.2	38.7

E. SPAIN

1. Production

Production of coal (hard coal, anthracite and brown coal) in 1972 and expected production in 1973 (thousand tons):

	1972	1973
Coal	8 150	8 500
Anthracite	3 010	3 000
Brown coal	3 100	3 200
Total	14 260	14 700

2. Consumption (thousand tons):

	1972	1973
Coal	11 350	11 850
Anthracite	3 200	3 250
Brown coal	3 250	3 200
Total	17 700	18 300

Consumption of coking coal in iron and steel plants, and in coke ovens independent of these, was 6 million tons in 1972; it is expected to increase by 50 to 60 thousand tons in 1973.

Consumption in thermal power stations (thousand tons):

	1972	1973 (estimates)
Coal	4 000	4 500
Anthracite	1 800	1 950
Brown coal	2 600	2 700
Total	8 400	9 150

3. Stocks

Stocks of coal at the end of 1972 and estimated stocks at the end of 1973 (thousand tons):

	1972	1973 (estimates)
Coal	2 850	2 500
Anthracite	1 300	1 000
Brown coal	600	650
Total	4 750	4 150

4. Imports and exports

Imports of coking coal amounted to 3,200,000 tons in 1972 and are expected to be some 200,000 tons less in 1973. Imports of anthracite and brown coal were negligible.

Coal exports were also small.

F. UNITED STATES OF AMERICA

Bituminous coal and lignite production for the year 1972 reached 590.0 million short tons compared with the 1971 output of 552.2 million tons.

The gain in coal production in 1972 included a readjustment to compensate for strike losses sustained in late 1971, as the subsequent higher demand led to increased coal consumption and stock rebuilding. In addition to the negative effects of the strike, persistent problems stemming from unauthorized work stoppages, lower productivity, particularly in deep mines, and the continued closing of marginal or submarginal mines combined with certain market limitations for the higher sulphur coals and the continuing threat of further restrictive legislation effectively to prevent an immediate return to a rising output pattern. Existing problems together with proposed additional stringent environmental protection measures extended the trend towards surface mining, with a more pronounced rise in new production in western States.

The demand for bituminous coal and lignite in 1972 showed a net increase over 1971, owing to higher consumption in electric power generation, coking, manufacturing and industrial use. Total bituminous and lignite consumption reached 519.8 million tons compared with 494.9 million tons in 1971. Bituminous coal exports declined in 1972: 56.0 million short tons, compared with 56.6 million tons in 1971. Lower exports were related to a generally lower demand abroad, ample coal stocks and an improved world coking coal supply. Coal prices continued to rise in 1972, reflecting higher costs and problems relating to production.

Anthracite production was down sharply in 1972 with output reaching 7.1 million short tons compared with 8.7 million tons in 1971. Extensive and serious floods, coupled with higher prices, were also reflected in lower consumption, which dropped to 5.9 million tons in 1972 against 7.3 million tons in 1971. Anthracite exports were up slightly, reaching 743,451 tons, a gain of about 72,433 tons over 1971.

For the first half of 1973 bituminous coal and lignite production amounted to 286.5 million tons, 5 per cent or 15.6 million tons less than in the same period of the previous year. For the first half of 1973, preliminary indications based upon incomplete early data point to an increase in coal consumption in electric power generation, coke manufacturing and other industrial use. Because output was generally lower, the greater coal consumption in the first half of 1973 was met by significant stock withdrawals. Coal stocks in April 1973 were considerably below the high levels of 1 January and exports at midyear were down by nearly 3 million tons. Production and exports of Pennsylvania anthracite for the first half of 1973 show a slight improvement over the first six months of the previous year, indicating some recovery from losses incurred by earlier flood disasters.

Problems relating to low productivity and increased costs carried over into 1973. Efforts to comply with the progressively more stringent health and safety requirements appeared to have been accommodated to some degree. The generally poor outlook stemming from pending restrictive environmental protection legislation was balanced somewhat by two significant executive statements which hold promise of an improved future for the coal industry. The President's Energy Message of 18 April 1973 outlined a more important role for coal in the energy supply of the future. A second energy statement followed in June 1973 outlining an extensive energy research programme which would add further emphasis to the place of coal in future energy supply.

G. FRANCE

1. Economic conditions

Economic activity was satisfactory in France: the industrial production index rose by 6.1 per cent in 1972 (against 3.8 per cent between 1970 and 1971).

The iron and steel industry, which had slackened appreciably in 1971 (by about 5 per cent), continued to stagnate during the first four months of 1972 but later showed a marked improvement (+ 6.3 and 8.4 per cent for pig-iron and steel respectively during the last eight months of 1972, compared with the same period in 1971). For the whole of 1972, compared with 1971, the corresponding percentages were + 3.6 and + 5 per cent.

2. Climatic conditions

The temperature severity index, based on degree-days, was approximately 100. The consumption of fuel for space heating was therefore "normal" in 1972.

Hydraulicity was 10 per cent below normal (as in 1971). Coal consumption in electric power stations (see below) nevertheless diminished substantially in 1972.

3. Total energy consumption

The following table gives the breakdown, by type of energy, of total deliveries to final users:

		1970	1971	1972
Solid fuels	million tce	35.1	29.2	26.8
	%	17.8	14.2	12.2
Petroleum products (including motor fuels)	million tce	107.4	116.3	126.2
	%	54.4	56.6	57.7
Gas	million tce	13.9	16.5	19.4
	%	7.0	8.1	8.9
Electricity	million tce	41.2	43.4	46.3
	%	20.8	21.1	21.2
Total	million tce	197.6	205.4	218.7

During the last two years the annual growth rate in the consumption of petroleum products has slowed down considerably. The average for the decade 1960 - 1970 was 12.5 per cent, and for each of the years 1968 and 1969 it was 13 per cent (and 10.4 per cent in 1970). In 1971 and 1972 it was 8.3 per cent and 8.5 per cent respectively.

Gas, on the other hand, has been in full expansion during the last three years: 16.2 per cent in 1970, 14.7 per cent in 1971, 17.6 per cent in 1972; whereas the average annual rate for the decade 1960 - 1970 was 9.6 per cent.

In deliveries of all types of energy except motor fuels to final users, coal is the only one with a diminishing share. It accounts for only 14.4 per cent against 16.6 per cent in 1971, whereas the share of petroleum products rose from 49.2 to 50.2 per cent. When motor fuels are included in total deliveries, the share of petroleum products rises to 57.7 per cent and that of coal declines to 12.2 per cent.

The share of coal in total primary energy requirements (including motor fuels) is higher: 19 per cent, mainly on account of the fuels burnt in power stations. For the same reason -- to which can be added substantial internal consumption in refineries -- the share of petroleum products in primary energy requirements (64.9 per cent) is also higher than in deliveries to final users.

At the primary energy stage coal is no longer the only fuel whose relative share has diminished: that of primary electricity has also diminished, because hydro and nuclear installations are at present developing less rapidly than total primary energy requirements. This situation will, however, change in the future, when nuclear energy will account for the bulk of the growth in electric power resources.

4. Demand

Apparent consumption: The following table gives the breakdown by consumption sector for the last three years (these figures do not take account of fluctuations in users' stocks).

			1970	1971	1972
Power stations	(EDF)	Hard coal	9.1	8.9	6.7
		Brown coal	1.2	1.1	1.4
	Mines	6.7	8.3	6.6	
	Iron and steel	0.6	0.6	0.5	
Total			17.6	18.9	15.2
Iron and steel industry:	Coke	13.5	11.7	11.4	
	Coal	1.9	1.9	2.0	
Total Iron and steel industry			15.4	13.6	13.4
Industry (including consumption at mines and re-charged dust)			8.5	6.6	5.4
Households and small industry (including miners' coal)			12.2	10.1	9.0
SNCF (French Railways)			0.4	0.2	0.1
Conversion losses			4.2	3.5	3.3
Total			58.3	52.9	46.4

Apparent consumption has declined sharply, by 6.5 million tons (12.3 per cent) between 1971 and 1972, against 5.4 million tons (9.3 per cent) between 1970 and 1971.

The reduction in deliveries to electric power stations was particularly large: 3.7 million tons (57 per cent of the total reduction), whereas in 1971 power stations took 1.3 million tons more than in 1970. As in 1971, hydraulicity was 10 per cent below normal. Conventional thermal production (100.8 TWh, i.e. thousand million KWh, against 91.5 in 1971) increased by 10.1 per cent. Allowing for fluctuations in stocks, real coal consumption amounted to 15.4 million tons in 1972, as against 18.6 million tons in 1971, a decline of 3.2 million tons (17.2 per cent). This decline in coal consumption, along with a rapid increase in the output of electricity by thermal methods, is due to:

(a) The smaller share of colliery power stations (which consume mainly coal) in thermal power production (13 per cent in 1972 as against 17 per cent in 1971), i.e. a coal consumption of 6.6 million tons in 1972 against 8.3 million tons in 1971, although the equipment of coalfields did not change between 1971 and 1972. It is true that output in 1971 was exceptionally high owing to economic conditions;

(b) The diminution of the share of coal in the total consumption of EDF power stations (26 per cent in 1972 as against 37 per cent in 1971). In 1972 coal consumption (at 6.9 million tons) was exactly the same, for a conventional thermal power production of 74.5 TWh, as it had been ten years before (in 1962) for a production of 25.7 TWh. Consumption of fuel oil increased by 36 per cent between 1971 and 1972, and its share in the total rose from 52.5 to 62.5 per cent.

Natural gas consumption increased by about 30 per cent between 1971 and 1972, though it still represents only about 10 per cent of the total.

The growth of activity in the iron and steel industry was mentioned in the introduction. Pig-iron production for the year rose by about 3.6 per cent compared with 1971, from 18.3 to 19.0 million tons.

Total deliveries (coal and coke) were very stable: 13.4 million t against 13.6. Allowing for fluctuations in stocks, real consumption was 13.6 million t against 13.7.

Blast-furnaces produced 3.6 per cent more pig-iron than in 1971, but specific consumption fell by 5.3 per cent (558 kg of blast-furnace coke per t of pig-iron, as against 589 in 1971). Consequently consumption of blast-furnace coke fell slightly: 10.6 million t against 10.8 million t in 1971. These results are well in line with the studies made in France of medium-term prospects for blast-furnace coke requirements, which forecast that they would remain fairly stable.

Of the fuels (fines and coke dust) used for sintering iron ore, the share of fines is growing rapidly: in five years it has increased from 50 to 75 per cent. In 1972, 2 million t of fines and 0.7 million t of coke dust were consumed for this purpose.

The consumption of coal and coke for various purposes in the iron and steel industry shows a very gradual decline and is at present about 0.3 million t (not including the consumption of the only plant in the iron and steel sector still relying entirely on coal).

In the "industry" sector, in which - as was said above - activity increased most rapidly between 1971 and 1972, the decline in coal consumption slowed down: -18 per cent as against about -22 per cent in 1971.

The regression also slowed down in the household sector: -11 per cent against about -17 per cent in 1971, although the winter severity index was close to the normal in 1972 and 5 and 6 per cent above the normal in 1970 and 1971 respectively. Smokeless ovoids, which slackened slightly in 1971, almost regained (at 1.30 million t) the record level of 1970 (1.35 million t).

(a) Recapitulation and trend of coal consumption in surviving sectors

The table below shows trends in coal consumption in these sectors since 1962 (the figures for the household sector indicate deliveries):

(million t)

	EDF (Electricité de France)	Industry	Household sector	Iron and steel industry	
				Blast-furnace coke	Sundry fuels ^{a/}
1962	6.9	13.7	18.3	12.8	2.7
1963	5.9	13.9	21.8	12.1	3.1
1964	7.9	12.7	18.3	12.8	3.1
1965	7.8	11.7	16.2	12.3	3.2
1966	8.6	10.7	14.0	11.6	3.1
1967	10.7	9.7	13.4	10.9	3.2
1968	11.1	8.9	13.1	11.0	3.2
1969	11.9	8.5	11.8	11.8	3.4
1970	8.8	7.0	11.1	11.9	3.5
1971	8.6	5.2	9.1	10.8	3.5
1972	6.9	4.4	8.1	10.6	3.5

a/ Including power stations.

2. Movements of stocks of main consumption sectors

A comparison of estimated stocks of the main consumption sectors on 31 December 1971 and on 31 December 1972 gives the following result:

(thousand t)

	31 December 1971	31 December 1972
Electricité de France ^{a/}	3 367	3 167
Iron and steel industry	1 426	1 308
of which: coking coal	(377)	(476)
Households and small industry (retail only)	(on 1.4.71) 1 960	(on 1.4.72) 1 600
Industry ^{b/}	600	500

a/ SNCF stocks, which are now negligible, are no longer indicated. In last year's report the stocks on 31 December 1971 should read 7.7 and not 717.

b/ Estimate.

(c) Real and corrected consumption

The table below shows coal-consumption trends during the last four years, with estimates for 1973 (in million t of hard coal + coke + patent fuel + brown coal):

	1969	1970	1971	1972	Forecasts 1973
Apparent consumption	61.4	58.3	52.9	46.4	42/43
Real consumption	62.6	57.9	53.0	46.9	
Real consumption corrected for weather	62.4	58.5	51.7	46.3	
Weather conditions					assumed normal
Hydraulicity	1.05	1.11	0.90	0.90	
Severity of temperature	1.06	1.05	1.06	1.00	

5. Supply

The following table shows how the resources corresponding to the apparent consumption were made up:

(million t)

	1970	1971	1972
Production and secondary products recovered	40.6	36.7	33.5
Imports	17.6	16.8	15.1
Exports	2.1	1.5	1.6
Fluctuations in stocks (- = reduction; + = increase)	-2.2	-0.9	+0.6
Total resources	58.3	52.9	46.4

(a) Production and production factors: Pithead stocks

In 1972 hard coal production amounted to 29.7 million t against 33.0 million t in 1971; brown coal production to 3.0 million t against 2.8 million t in 1971, including brown coal from the Landes region worked by Electricité de France to supply a local electric power station.

Thus total hard plus brown coal production amounted to 32.7 million t in 1972 as against 35.8 million t in 1971, a fall of 3.1 million t (-8.7 per cent), a far higher rate than had been expected.

The breakdown of production by category of fuel in 1972 was --

	(million t)
Anthracite and lean	8.5
1/4 bit. and 1/2 bit.	1.0
Bit. and flame coal	17.9
Dry flame coal	2.3
Brown coal	3.0

Manpower on the pay-roll of the nationalized hard- and brown-coal mines continued to fall steadily. On 31 December the numbers of workers were as follows:

	1969	1970	1971	1972
Thousands employed				
Workers:				
underground	71.7	64.2	58.8	51.5
surface ^{a/}	34.7	32.2	30.7	29.2
Foremen and engineers:				
underground	7.4	7.0	6.5	6.0
surface ^{a/}	6.5	6.2	6.0	5.9

^{a/} Not including persons employed at auxiliary plants

The rate of decline in the number of underground workers, which slowed down in 1971, rose again in 1972 to 12.4 per cent.

Output per underground manshift, which was unchanged in 1971 compared with the previous year, rose slightly in 1972: 2,792 kg against 2,704 in 1971, or +3.3 per cent.

Pithead stocks hardly changed in 1972, increasing by only 351,000 tons, whereas they had fallen by 1.2 million tons in 1971.

Coke stocks again exceeded, by 135,000 t, the record established the previous year, reaching 644,000 t at the end of 1972.

On 31 December 1972 the stocks situation was:

	(thousand t)
Total hard coal stocks,	5,192
of which	
merchant coal on the ground	2,366
low-grade products on the ground	2,576
Total brown coal stocks	533
Stocks of blast-furnace coke:	
80 mm coke	308
other sizes	366
Stocks of patent fuel	77

The breakdown by categories of French hard and brown coal on 31 December 1971 was approximately as follows (thousand t):

Anthracite and lean			
(Groups I and II)	2,102, of which:	graded	196
		washed fines	309
		other	1,597
Bituminous			
(Groups V and VI)	2,734, of which:	graded and washed fines	1,064
		other	1,670
Semi-bit. and dry flame			
(Groups III, IV and VII)	356, of which:	graded and fines less than 20 per cent inert	154
		other	202
Brown coal			
	533, of which:	graded and fines less than 20 per cent inert	59
		other	474

Available stocks of merchant coal on the ground increased by 120,000 t, but are still low (1.34 million t).

In addition, the Saar Coal Sales Office had stocks totalling 169,000 tons on 31 December 1972, approximately the same as the previous year.

(b) Imports

In 1972 France imported 15.17 million t of solid mineral fuels (against 16.83 million t in 1971), made up as follows:

11,700,000 t of hard coal
3,118,000 t of coke
119,000 t of hard coal patent fuel
233,000 t of brown coal patent fuel

The total figure of 15.17 million t is the lowest ever recorded, the previous minimum being 15.442 million tons in 1967; but this is not true of the various categories of fuel, owing to the changes that have taken place in the breakdown of the overall tonnage among these categories.

One example of this change can be found by comparing the years 1971-1972, where from one year to the next total tonnage fell by 10 per cent while the tonnage of hard coal fell by 14.2 per cent (19.3 million t) and that of coke increased by 11.5 per cent (+322,000 t). The shares of hard coal and coke in the total tonnage were respectively 81 and 17 per cent in 1971, and 77 and 21 per cent in 1972.

Deliveries of imported hard coal fell in all sectors, except sintering fines for the iron and steel industry.

(million t)

-0.5 for power stations
+0.15 for the iron and steel industry (sintering fines)
-0.85 for coking coals (including steel-industry coke ovens)
-0.4 for households and small industry
-0.15 for industry
-0.15 for patent fuels.

Of the additional tonnage of coke, 240,000 t went to the steel industry and the rest to stocks.

(c) Exports

Exports increased slightly (1.6 million t as against 1.5 in 1971), but did not regain the high level of 1969 and 1970 (rather more than 2 million t).

(d) The problem of coke

In 1972 apparent consumption of coke in France was of the order of 13.7 million t (as against 14.3 million t in 1971), including:

11.4 in the iron and steel industry against 11.7 in 1971
1.4 in industry against 1.5 in 1971
0.3 in households against 0.4 in 1971
0.6 in other uses (internal uses, etc.) against 0.7 in 1971

Domestic production was 11.5 million t as against 12.5 million t in 1971. Producers and importers laid 200,000 t to stocks against 300,000 t in 1971. Imports, exclusively from EEC countries, amounted to 3.0 million t (against 2.7). Exports, at 600,000 t, remained at the same level as in 1971.

After the sharp fall in 1971 (by 2.5 million tons from 1970), the drop in the demand for (or apparent consumption of) coke in France between 1971 and 1972 corresponded to the more moderate downward trend of the previous ten years but at a very much lower tonnage level: demand, which was between 18 and 19 million t from 1961 to 1965 and between 16 and 17 million t from 1966 to 1970 is now around 14 million t.

The share of net coke imports in covering internal demand fluctuates but is slowly declining since, whereas the average over the last ten years is 20 per cent, all the percentages since 1967 have been lower and the figure for 1972 was 17 per cent.

The share of imported coal used in coke ovens also fluctuates, but increased more rapidly in 1972: it was 41.7 per cent compared with an average of 31.4 per cent over the past ten years.

The percentage of the total demand for coke in France covered by French coking coal was 47 per cent in 1972 (against an average of 50 per cent over the last ten years).

The siting of the oldest coke ovens was determined by the location of the mines and of iron and steel works. They are therefore nearly all situated inland, and until very recently were supplied mainly by French coal.

As a result of the decline in French coal production and the expansion of the coastal iron and steel industry, this situation has been changing in recent years.

Steel firms are building new plants in coastal areas, and tend naturally also to build new coke ovens, which will mainly use imported coal.

In production capacity these new batteries will be able to replace the old coke ovens, which will have to close down as obsolescent. The iron and steel firms try to ensure their supplies by signing long-term contracts.

6. Trend of prices for solid mineral fuels

The change in the dollar exchange rate in December 1971 led to an appreciable fall in world prices of coking coal and hence of blast-furnace coke, and also in the price of fuel oil, which for competitive reasons governs the sales of steam coal to thermal power stations and to industry. However, during the last quarter the price of American coking coal rose by about one dollar, mainly due to an increase in miners' wages.

Pithead prices of French coals for industrial use did not change, but coals for household use went up by about 3 per cent from 16 April 1972.

7. Relation between coal prices and the prices of competitive fuels

The table below shows the trend of prices for certain typical categories of coal compared with the price of No. 2 fuel oil 1/:

1/ Coal prices are shown free of tax (the tax being deductible).

	1960 December	1965 December	1970 December	1971 December	1972 December
Washed semi-bit. fines					
<u>Bassin du Nord and Pas de Calais</u>					
collieries in F/t	68	72	113.25	116.50	116.50
(LCV 7,090) in F/kilothermie	9.59	10.15	15.97	16.43	16.43
Washed flame coal fines					
<u>Bassin de Lorraine</u>					
collieries in F/t	61	64	82	92	92
(LCV 6,456) in F/kilothermie	9.46	9.92	12.71	14.26	14.26
No. 2 fuel-oil (list price ex-Atlantic refinery) in F/t	116.60	101.50	109.44	134.27	115.48
(LCV 9,700) in F/kilothermie	12.02	10.46	11.28	13.84	11.91

Fuel oil prices for 1960 and 1965 include tax; from 1970 the price is shown free of tax, VAT being deductible as for coal.

These fuel oil prices are minimum prices, after deduction of discounts which may amount to as much as 20 per cent.

8. Prospects

The regional Coal Boards are continuing the programme for reducing production and numbers employed laid down in the government instructions which have been summarized in previous reports.

It is expected that the numbers of underground and surface workers will be reduced to 72,300 by the end of 1973. Allowing for an increase in productivity and changes in other factors (number of days worked, presenteeism), the output of the French coal industry should be between 28 and 29 million t (plus about 1.3 million t of brown coal from mines worked by EDF in the Landes region).

HUNGARY

Production of energy sources and import and export data are shown in Table 1. The total quantity of energy available in 1972 was practically the same as in 1971, but there was a decline in domestic production offset by an increase of imports. Consumption of energy sources increased by 2.2 per cent over 1971, with a corresponding reduction of stocks.

The planned change in the energy structure continued in 1972. In accordance with the basic guidelines of the five-year plan for 1971-1975, the share of hydrocarbons amounted to:

Share of hydrocarbons	1970	1971	1972	1975
Planned	43	-	-	55-56
Actual	43	44.8	48.8	-

Domestic production of coal fell to 78.9 Tkcal in 1972 compared with 86.7 Tkcal in 1971, i.e. by 9 per cent.

1. Consumption

The growth in the relative consumption of more modern and efficient hydrocarbon energy sources inevitably leads to a decline in demand for coal. This trend is to be found among all groups of users except the Hungarian Electric Power Trust (TETs). The decline was especially marked in the case of the TÚZÉP marketing organization (household and group consumption). The demand for solid fuels fell rapidly as a result of three consecutive mild winters (the average winter temperature in 1971-72 (October to March) was 2.2° higher than the mean for the previous 90 years) and of the switchover to liquid hydrocarbons.

As a result of the implementation of the programme for electricification and dieselization, the consumption of coal by the Hungarian Railways declined and by 1980 is likely to be given up completely.

Coal consumption by groups of consumers
(In thousand tons and in percentages)

	1971		1972	
	thousand tons	%	thousand tons	%
Hungarian Electric Power Trust (TETs)	14 183	51.7	14 742	57.2
Hungarian Railways	1 242	4.5	1 130	4.4
TÚZÉP Organization (household and group supplies)	4 650	17.0	3 649	14.2
Other users	7 347	26.8	6 249	24.2
Total	27 422	100.0	25 770	100.0

The rapid fall in coal consumption creates difficulties in the rational use of the existing coal-producing capacity. A study is accordingly being carried out to identify the stable market for its products so that the coal industry can be kept economic.

2. Supply

Coal supplies exceed demand for the reasons described above. While the total quantity of coal output is falling, the share of lignite produced by opencast methods is rising.

	1971		1972	
	Tkcal	%	Tkcal	%
Hard coal	16.0	18.5	14.8	18.8
including -				
coking coal used in coke ovens	3.2	3.7	3.0	3.0
Brown coal	60.5	69.7	52.8	66.9
Lignite	10.2	11.8	11.3	14.3
Total	86.7	100.0	78.9	100.0

Production of briquettes amounted to 1 080 000 tons in 1972 against 1 308 000 tons in 1971.

The planned reduction in underground mining will contribute to the rationalization of the productive structure of the coal industry, including the maintenance in operation of collieries at present using inefficient methods, by eliminating heavy physical work.

Collieries in operation	1971	1972
Underground	73	63
Opencast	4	4
Spoil-processing plants	1	1
Total	78	68

The continued concentration of face work takes the form of a substantial increase in the share of longwall faces in total output accompanied by a reduction in the share of room-and-pillar working and drivage.

The extension of mechanized working in the coal industry in the percentage of total output is shown by the following figures:

	1965	1971 (percentages)	1975
Mechanized cutting	5.9	34.5	45.1
Mechanized loading	32.3	60.6	66.0
Mechanized haulage	78.1	92.4	93.0

As a result of the increase in the mechanization of productive processes, the share of opencast working, the concentration of working sites and higher technical standards, productivity per colliery increased by 30 per cent during the five-year period 1966-1970. The planned increase in productivity for the five-year period 1970-1975 is 36 per cent.

The productivity indicators for 1972 as compared with 1971 are:

	1971	1972
(a) <u>Underground work</u>		
Productivity at longwall faces (including auxiliary personnel), t/manshift	5 995	6 115
Productivity at faces with powered supports, t/manshift	9 177	9 566
Productivity of productive workers, t/manshift	5 219	5 268
Productivity of all underground workers, t/manshift	2 240	2 222
Productivity per colliery, t/manshift	1 461	1 448
(b) <u>Opencast working</u>		
Productivity per opencast mine	7 009	7 921
(c) Productivity per undertaking, t/manshift	1 689	1 764

The decline in output per colliery and per undertaking is connected with the decline in the underground production of coal by 11.3 per cent.

The decline in production in the coal industry combined with the increase in productivity gives rise to certain problems concerning the employment of labour in collieries. The number of workers employed in the coal industry was 95,188 in 1971. As a result of the reduction of output, the number of workers fell by 5,369 to 89,819 in 1972. Difficulties also arose in ensuring a proper age-distribution of workers.

In view of the great social and political significance of the problem of labour in the coal industry, the Government has taken steps to stabilize the labour force and to increase the percentage of young workers in the over-all structure.

It is essential to safeguard the existing productive capacity of the coal industry and to maintain the present numbers of productive workers in order to ensure that the future demand for coal will be met. The temporary decline in output therefore has an adverse effect on the technical and economic indicators of labour productivity in the coal industry, owing to the relative rise in production costs.

Production costs and average price of coal	forints/ton	
	1971	1972
Production costs	247.41	250.70
Average price	265.21	251.36

Factors affecting production costs:

- rise in costs due to decrease in volume of production by underground methods;
- reduction in costs due to increase in the proportion of coal produced by opencast methods;
- rise in costs for other reasons, connected with changes in economic conditions.

The average price of coal is falling as a result of the increase in the proportion of lignite in the total amount of coal consumed by TETs.

3. International trade

International trade also shows a decline in the demand for solid fuels (see table 1). Between 1972 and 1975 coal imports are expected to fall from 1 873 000 tons to 1.5 million tons, and briquette imports from 441 000 tons to 400 000 tons. This trend is expected to continue during the period 1975-1980.

4. Projected long-term coal production and consumption

The energy economy cannot immediately respond to sudden changes in supply and demand; the planning authorities therefore aim at defining possible consumption and production targets in their long term plans.

The change in the energy structure implies a decline in coal consumption and a gradual reduction in the domestic production of coal by underground methods, accompanied by a gradual increase in the production of lignite by opencast methods.

In conjunction with the decline in underground mining, the structure of production in the coal industry must be rationalized in order to adapt the product mix to consumers' requirements. This means that steps have to be taken to rationalize the utilization of existing productive capacity in accordance with consumers' needs.

Table 1

PRODUCTION, IMPORTS AND EXPORTS OF ENERGY
(in Tkal)

Energy sources		1960	1970	1971
PRODUCTION	Gas and coking coal	7.4	7.0	2.1
	Hard coal	10.3	9.0	12.8
	Brown coal	64.8	60.5	52.7
	Lignite	9.1	10.2	11.3
	Total coal	91.0	86.7	78.9
	Petroleum	18.9	19.2	19.4
	Natural gas	29.5	31.4	34.0
	Others	5.0	5.6	5.3
	Total	144.4	142.9	137.6
IMPORTS	Coal	13.1	12.8	11.7
	Ovoids	2.1	2.4	2.0
	Coke	8.1	8.8	8.4
	Petroleum	48.8	51.6	58.7
	Natural gas	1.7	1.7	1.7
	Electricity	10.8	13.4	13.6
	Others	0.6	0.1	0.1
	Total	85.2	90.8	96.2
	Available energy	229.6	233.7	233.8
	Exports and stocks	13.0	10.2	5.4
	Total consumption	216.6	223.5	228.4

I. ITALY

This report cannot be based on the definitive national energy balance as the competent authorities have not yet completed its preparation, but it is not expected that the final results of the work in progress will substantially modify the provisional estimates set out herein.

1. General

The 1972 national energy balance as a whole, in terms of heat units, shows, compared with 1971, an increase in available resources and net consumption of 3.4 per cent. The primary energy sources taken into consideration account for only 98.4 per cent of the total; it was thought preferable to leave out of account minor sources such as vegetable fuels, lignite, etc.

Closer study shows that the only source of energy showing a decline in consumption (in heat units) was hard coal: -2.5 per cent.

The consumption of all other energy sources, however, rose to a greater or less extent: natural gas, + 14.4 per cent; petroleum products, + 2.8 per cent; hydro-geothermic energy, + 4 per cent.

The changes in the energy balance in 1972 therefore show a general advance in demand and availability, with some changes in composition, except in the case of coal.

2. The national coal market in 1972

The evolution in the demand for hard coal in 1972 has not meant any change in the previous situation: expansion continued in the coke sector, with growth in the demand from steelworks and a decline in other sectors due to various factors, such as the stoppage towards the end of July in coal deliveries to the Porto-Vesme iron and steel plant, following a strike in the Seruci mines, a decline in deliveries of foreign fossil fuels to electricity generating stations (owing partly to the exceptional water supply during the year and partly to other economic and ecological factors) and the almost complete cessation of the manufacture of gas from coal by town plants, which now rely on methane and petroleum products. The resulting discontinuance of coke-oven gas production has had repercussions, not altogether negative, on the internal market.

Some consumers of gas coke, for instance, have gone over to coke-oven coke, of which there were considerable stocks at the end of 1971.

The improvement in the coke-oven coke market was due largely to the independent coke-oven sector (+ 11.80 per cent) and the increase in its exports (+ 29.5 per cent).

To sum up, in line with the growth of the iron and steel industry, the directly associated coking plants raised their output in 1971 and 1972 by 7.9 per cent.

To meet internal demand, 12,115,402 tons of solid fuel, 25 per cent less than in 1971, had to be imported. From one year to the other, imports from European countries went down by 11 per cent while imports from other countries rose by 20 per cent. Prices and transport costs were the reason for these changes.

The only increases in fuel imports were in coking coal (+ 9 per cent), owing to the rising activity of iron and steel industry's coking plants, and in gas coke, where the domestic supply could no longer meet demand.

3. Demand trends

The most recent forecasts, as requested by the Commission of the European Communities, go up to 1975; it is expected that by then fossil coal will be used almost exclusively in the coking plants and power stations. The coking plants are expected to treat 13 million tons in 1975 and a few hundred thousand tons more by 1977.

J. NETHERLANDS

The gradual closure of mines has proceeded as planned, so that production amounted to 2.8 million tons (- 65 per cent compared with 1970), made up of 1.78 million tons of industrial coal and 1.02 million tons of graded household coal. Pithead stocks at the end of 1971 totalled 570,000 tons (as against 560,000 at the end of 1971), including 99,000 tons of graded domestic coal (as against 141,000 tons).

The following reductions in consumption were recorded in the various consumption sectors:

(thousand tons)

	1970	1971	1972
Patent fuel plants	875	575	460
Public power stations	1,795	1,040	485
Coke ovens	2,605	2,435	2,485
Other industries	355	200	145
Households	1,225	565	415

The inroads made by natural gas, and a higher than normal seasonal temperature explain the decreases in "other industries" and household use.

Trends in the public power stations sector were as follows:

(thousand tce)

	1970	1971	1972	1972 compared with 1971
Coal	1,760	1,005	480	- 52%
Fuel oil	4,005	3,555	3,025	- 15%
Blast-furnace gas	430	440	375	- 15%
Natural gas	5,260	7,470	10,060	+ 35%
Nuclear power	140	155	125	- 20%
Total	11,595	12,625	14,065	+ 11.5%

Coal imports held steady (3.2 million tons in 1972 compared with 3.1 million tons) but there was a reduction of 600,000 tons in imports from ECSC and an increase of 500,000 tons in imports from non-member countries.

K. POLAND

1. Demand

The demand for fuel and energy to meet domestic and export requirements was met as follows in 1972:

(a) Hard coal and hard-coal briquettes

In 1972, 118.7 million tons of hard coal and hard-coal briquettes were earmarked for domestic requirements, and 32.6 million tons for export.

Hard-coal consumption was as follows:

- (i) Industry (production): 88.7 million tons, i.e. 4.2 per cent higher than the 1971 figure of 85.1 million tons. Of this total, 23.1 million tons, or 26 per cent, were used as raw material for chemical processing in coke-gas and semi-coking plants - including 22.5 million tons, or 25.4 per cent of the total consumption by industry, in coking and gas plants.

(ii) Ministry of Railways

Consumption of hard coal and hard-coal briquettes amounted to 7.1 million tons, i.e. roughly the same as in 1971.

(iii) Households

Consumption of hard coal in this sector fell to 22.9 million tons, i.e. 3.8 per cent below the 1971 figure, owing to favourable weather conditions.

(iv) Exports

A total of 32.6 million tons of hard coal was delivered for export, i.e. 6.9 per cent more than in 1971.

(v) Hard-coal stocks

(a) On 31 December 1972 industrial hard-coal stocks stood at 7.2 million tons, i.e. 16.1 per cent higher than at the end of 1971.

(b) On the same date, stocks of hard coal held by the Ministry of Railways amounted to 0.5 million tons.

(b) Brown coal and brown-coal briquettes

In 1972 brown-coal output amounted to 38.2 million tons, i.e. 3.7 million tons or 10.7 per cent more than in 1971.

(i) 33.8 million tons were used for production;

(ii) 4.1 million tons were earmarked for export.

(c) Coke

In 1972 coke production reached 17.7 million tons, an increase of 3.5 per cent over the 1971 figure. Of this production, 89.8 per cent came from coke-chemical plants.

Domestic consumption accounted for 16 million tons.

2. Supply

In 1972 hard-coal output rose to 150.7 million tons, i.e. 5.3 million tons, or 3.6 per cent, above the 1971 figure. Production of hard-coal briquettes amounted to 1.7 million tons.

In 1972, 215,000 workers were employed in hard-coal mines.

Productivity per underground manshift was 2,756 kg, i.e. 98 kg or 3.7 per cent higher than in 1971.

Coal output per man-day was 2,087 kg, or 3.7 per cent above the 1971 figure of 2,012 kg.

On 31 December 1972, pithead hard-coal stocks amounted to 1 million tons.

3. Trends in international trade in solid fuels

Prices of solid fuels remained unchanged in the period under consideration.

4. Long-term trends in the demand for and supply of coal

In Poland the expansion in hard coal production is expected to continue. An output of about 156.5 million tons is forecast for 1973, i.e. 5.8 million tons more than in 1972, an increase of 3.8 per cent.

Brown-coal output is expected to reach about 36.5 million tons.

The increased output of hard and brown coal envisaged in 1973 will fully satisfy the country's energy requirements. In 1975 hard-coal output is expected to attain 169 million tons and brown-coal output 36.5 million tons.

L. GERMAN DEMOCRATIC REPUBLIC

Brown coal is the most important primary energy source in the German Democratic Republic, which in 1972 produced 248 million tons, about 30 per cent of the world's brown coal production.

In accordance with the guidelines laid down by the Eighth Congress of the Socialist Unity Party, mining of brown coal will remain at the level of about 250 million tons a year over the next few years and the increase in energy demand will have to be met mainly by natural gas, oil and nuclear energy. Other primary energy sources are negligible in relation to demand.

In 1972 production of hard coal amounted to 711 thousand tons. Mining will cease in a few years owing to exhaustion of the seams. About the same amounts of hard coal (7.6 million tons) and coke (3.1 million tons) were imported, but crude oil imports (14.9 million tons) represented an increase of 37 per cent. Hard coal and crude oil imports came mainly from the Soviet Union.

About half the 1972 brown coal production was used for making briquettes (for household consumption and small-scale industry) and about 30 per cent to produce 83 per cent of the electricity demand.

The production of brown coal high-temperature coke amounted to about 2 million tons, an increase of 10 per cent over the previous year; 3.8 million tons of brown coal low-temperature coke was produced and 3.5 million m³ of town gas. The gas is manufactured in non-pressure gas works and in two coking plants. Extraction of brown coal in opencast mines involved the removal of 916 million m³ of overburden, i.e. 3.7 m³ per ton of coal. Average annual output per mine was 7 million tons, and the highest output more than 20 million tons/year.

Further development of brown coal production will follow the guidelines adopted by the Eighth Congress of the Socialist Unity Party. Priority will be given to the full utilization of the country's resources. Substantial investments will be made to maintain extraction at its present level.

Towards 1980, sixteen opencast mines with an output of 110 million tons/year will be closed and their place taken by new or extended undertakings. To produce primary energy at low cost in spite of worsening geological conditions, great attention will be paid to mining efficiency. Research work is being done on:

- rationalization of existing mines;
- development of new heavy equipment;
- increasing safety in the mines.

The main objective of rationalization is improved equipment performance. In this connexion, over the last few years, the output from bridge conveyors has been raised by 30 per cent. Emphasis has been placed on relieving heavy manual operations and improving working conditions in general. Considerable progress has been made through the mechanization of auxiliary operations.

During the past few years, the development of new heavy equipment has centred on the construction of overburden bridge conveyors capable of removing a 60 m thickness of soil.

Such a bridge was brought into operation in December 1972 in the Welzow-Sud opencast mine. With its excavators, this equipment has a service weight of 26,500 tons and working at full capacity can remove between 100 and 130 million m³ of overburden a year, making it the largest and most efficient mining machine in the world.

M. UKRAINIAN SOVIET SOCIALIST REPUBLIC

In 1972, the Ukrainian Soviet Socialist Republic produced 211.2 million tons of raw coal (merchantable product 183 million tons).

Coal provides 58 per cent of the country's total fuel and energy balance.

The consumption pattern for Ukrainian coal reflects the increasing demand from thermal power stations, coking plants and household and district heating plant. In 1972 these sectors took up about three-quarters of the total output.

1. Hard Coal

The Ukrainian Soviet Socialist Republic ranks as one of the leading countries in the world in per capita production of hard coal.

The chief producing region is still the Donetz coalfield, which has large reserves of all grades of hard coal, from flame coal (F) to anthracite (A). In 1972 the Ukrainian Donbas produced 185.3 million tons of coal.

The Lvov-Volhynie coalfields share in the production of hard coal is much less: 14.2 million tons, 7.1 per cent of total production.

The total production of hard coal in the Ukrainian Soviet Socialist Republic in 1972 was 199.5 million tons.

Breakdown of coal extracted, by categories:

Total	Percentage per category							
	Flame-coal	Gas coal	Bituminous	Coking coal	Lean caking	Lean	Lean-anth.	Anthracite
	(F)	(Gz)	(B)	(C)	(Lc)	(L)	(LA)	(A)
100	4.8	31.9	13.6	6.4	6.3	8.0	5.5	23.5

Coking coal accounted for 40.7 per cent of total production; it is mainly consumed by the coking plants but is also used in appreciable quantity by other industries and is exported.

High-sulphur bituminous coals are used by the energy-producing sector.

More than half (59.3 per cent) of the total hard coal output is used for energy production: the categories are mainly (69.1 per cent) gas coals and anthracite.

After treatment of the coals used for energy purposes in the preparation, sizing and briquetting plants, the range of coal products includes no less than fifty-seven types.

Classification of coal products used for energy purposes	Percentage	of which, per category:		
		F, Gz, C, B, Lc	Lean Coals	LA + A
Total	100.0	42.9	13.6	43.5
Raw	32.1	19.1	8.1	4.9
Concentrated	20.0	15.9	4.1	-
Sized	17.6	1.0	-	16.6
Agglomerated	1.0	-	0.6	0.4
Screened	26.6	5.1	-	21.5
Mixed and sluttly	2.7	1.8	0.8	0.1

Gas coal and graded washed anthracites are used for group heating installations, household purposes and industry.

More than 20 per cent of the hard coal production is exported to other Soviet republics. In 1972, Donetz coals accounted for 50.9 per cent of deliveries to coking plants in the USSR.

There is no difficulty in finding market outlets for Ukrainian coal, as is shown by the regular year by year decline in stocks at pithead and in the processing plants. In 1972 pithead coal stocks amounted only to 1.8 per cent of coal production.

The technological characteristics of the coal resources are adequate to meet the full range of users' requirements.

2. Brown coal

In 1972 11.7 million tons of brown coal were mined. The greater proportion (63.2 per cent) was used to make patent fuels.

The bulk of the production was marketed as briquettes (81 per cent), raw brown coal accounting for 19 per cent. Raw brown coal is not used exclusively as fuel; other purposes are the extraction of mineral wax and alkaline carburetted reagents.

Brown coal briquettes are much in demand for household use, particularly in rural districts.

The main feature of the pattern of brown coal consumption over the last few years has been a regular increase in power station use. Brown coal exports have likewise increased year by year and in 1972 amounted to 6 per cent of production.

Although priority for the expansion of production of gas and oil has fundamentally modified the country's fuel balance sheet, coal is still the principal fuel and this reflects the structure of the countries' fuel reserves. In addition, its role as a basic raw material for the metallurgical and chemical industries is increasing.

The Ukrainian Donbas will for a considerable time continue to be the principal source of supply of coking coal and coal for energy production in the national economy. Although the share of solid fuels in total fuel consumption is diminishing, there will nevertheless be an increase, in absolute value, in the quantity of coal used in the generating stations and boiler plants, for which coal is the most efficient fuel; up till 1990, the district heating and household sector will continue to be the third-ranking (in volume) consumer.

In agriculture, food industries and the building industry, the level of coal consumption will remain stationary.

Ukrainian production of hard coal will continue to expand, in spite of the expected deterioration in the geological conditions for mining.

The depth of workings in the Donbas is increasing by more than 15 m per year. By 1990 the average depth of working will probably be about 1,000 m. At this depth, the rock temperature is more than 40°C. Practically all the mines are dangerous, from coal and rock falls and gas blow-outs.

Study of changes in coal mining techniques suggests that future developments will centre on techniques reducing the number of operations to the minimum, which will facilitate mechanization and integrated automation of production at all stages.

Projections suggest that in the next 20 years, most of the Ukrainian coal output will come from fully mechanized mines; coal-getting will mostly be a manless operation.

It may be assumed that the major planning decisions embodied in the design studies for mines now being engineered will remain basically valid. In view of the high volume of production per face, however, the output from even a very large colliery will come from a limited number of workings; this will considerably simplify the transport and ventilation layout and reduce the number of roadways to be driven and maintained.

In this type of mine, winning operations will be mainly carried out by continuous-working automated units and combines that do not require permanent manning at the face.

One of the most complicated aspects of integrated automation and mechanization is the driving and propping of the roadways. The combines for drilage in rock and face-working now at the design or construction stage and units for driving roadways with separate coal- and rock-cutting provide for virtually complete mechanization for the whole cycle of drilage operations, and may be considered as prototypes for the mines of tomorrow.

Roadway maintenance is an operation which it is almost impossible to mechanize, still less to automate. It would be preferable to eliminate it, in future, from the production cycle, so that no maintenance whatever would be needed for the roadways.

The chief transport method used would be the conveyor, which offers a high and regular output and lends itself to automation. Auxilliary transport would be provided by self-propelling vehicles capable of travelling anywhere in the mine, from the shaft to the coal face.

The trend in surface installations will be trends reducing the number of operations. The coal mine and its auxiliary installations as known today will disappear. Operations requiring a large labour force, such as the stocking of raw coal in bunkers or on the ground, pre-treatment, grading and quality control will be eliminated.

The rock cut in driving roadways will be used mainly for stowing worked out areas. Small quantities of spoil taken to the surface will be tipped away from inhabited areas and might later be used for cultivation.

In addition to conventional methods, new procedures to cope with gas bursts and solve the ventilation problems hampering increased production at the face will include the use of an inert, explosion-proof gaseous environment in the mine and chemical and microbiological methods of methane absorption. Reliable methods to deal with the heat problem will be developed.

As in other sectors of the economy, the nature of work in the coal industry is changing radically. Mine-working will in future mainly consist in controlling production processes and checking and maintenance of the equipment. Hard physical tasks such as hewing and roadway driving and maintenance will be entirely eliminated. Men will go down the mine only from time to time and mainly for the purpose of moving equipment to new working areas or sectors, dealing with serious geological faults and replacing worn machinery or parts and, for other non-recurrent essential operations.

N. UNITED KINGDOM

The year 1972 ended with a significant improvement in the economy evident from almost all economic indicators, especially the third quarter figures for machine tool orders: new orders taken by the machine tool industry amounted to £51 million, of which £38 million was for home industry, representing a 100 per cent increase on the previous quarter. The figures suggest that industry has begun the investment that will be necessary to achieve the Government's 5 per cent growth rate target.

The revival in the steel industry continued throughout the year. Crude steel production in 1972 is provisionally estimated at 25.3 million tons, 4.5 per cent higher than the previous year, but still 3.0 million tons below the record output in 1970.

Provisional figures for United Kingdom fuel consumption for 1972 are set out below, together with the Ministry's estimate of the seasonally adjusted annual rate of energy demand:

(million tce)

	Coal	Petro- leum	Natural gas	Nuclear elec- tricity	Hydro- elec- tricity	Seasonally adjusted annual rate
January	10.9	13.3	3.5	1.0	0.3	315.0
February	8.3	15.0	3.4	1.1	0.2	306.6
March	10.1	17.3	3.4	1.2	0.2	300.2
April	8.5	12.5	3.1	0.8	0.2	314.9
May	9.4	11.3	2.9	0.7	0.1	338.8
June	10.7	13.4	2.4	0.9	0.2	337.9
July	8.6	9.3	2.0	0.6	0.1	330.1
August	7.5	9.4	2.2	0.6	0.1	337.2
September	11.2	12.9	2.5	0.8	0.1	324.5
October	10.4	12.0	3.1	0.7	0.1	347.9
November	10.8	13.7	3.8	0.8	0.1	343.8
December	14.7	17.0	4.2	1.3	0.3	339.6

The provisional figure of 327.3 million tons for internal energy consumption is 4 million tons higher than the 1971 level despite the effect of the miners' strike at the beginning of the year.

The year-end natural gas figure at 36.5 million tce was 10.7 million tce higher than the 1971 figure; this represents considerable progress towards the Gas Council's target of consumption of almost 60 million tce by the middle of the decade. Although the contribution from nuclear power at 10.5 million tce was marginally higher than the year before, it was considerably lower than expected. Consumption of oil increased by 9.8 million tce in 1972 to 157.1 million tce while internal coal consumption at 121.1 million tce was 17.5 million tce below the previous year's level.

1 and 2 - Demand/supply

Although internal coal consumption during 1972 was 17.5 million tons lower than in the previous year, there was a marked improvement in the beginning of September. In the week ended 9 September, for the first time, coal consumption exceeded the 1971 level. The improvement was maintained with consumption in excess of the previous year's level during seven of the following eight weeks and this improvement continued into the winter. Although total internal consumption in December was 3 per cent lower than the previous year's level, almost all of this shortfall could be accounted for by the temperature differences. The recovery in the consumption of coking coal was maintained and coal consumption at coke ovens was 12 per cent higher than in December 1971.

From the end of March, when the supply pattern returned to normal, total coal disposals were in line with the previous year's level; 99.6 million tons of coal were sold between April and December 1972 compared with 101.8 million tons in the corresponding period in 1971. The level of disposals in the summer was curtailed

by limited availability from the central coalfields and the replacement of indigenous coal by imports. Undistributed stocks at 23 December totalled 10.9 million tons, 0.7 million tons higher than at the same time in 1971.

(a) Electricity

The table below gives a comparison of the output and fuelling of Central Electricity Generating Board (CEGB) and Scottish stations for 1972 and 1971.

	CEGB			Scottish Stations		
	1972	1971	% Change	1972	1971	% Change
Electricity from steam stations (Million kWh)	196,704	191,341	+ 2.8	21,993	20,551	+ 7.0
Primary fuels consumed (thousand tce)				<u>2/</u>	<u>2/</u>	
Coal	58,613	65,397	- 10.4	6,410	5,657	+ 13.3
Oil	26,400	19,990	+ 32.1	2,826	2,613	+ 8.2
Nuclear energy ^{1/}	8,070	7,153	+ 12.8	802	855	- 6.2
Natural Gas	2,155	905	+238.1	-	-	-
Total	95,238	93,445	+ 1.9	10,038	9,125	+ 10.0

^{1/} Excluding UKAEA.

^{2/} Excluding Hydro-electricity.

(i) CEGB

Use of primary fuels at CEGB power stations in 1972 at 95.2 million tce was 1.8 million tce higher than the previous year. Coal consumption was 6.8 million tons lower, while the use of other fuels increased: oil (+6.4 million tce), nuclear energy (+900,000 million tce) and natural gas (+1.3 million tce).

The figures for the year are distorted by the seven week strike in the mines (from 9 January to 27 February 1972) which affected both the growth in electricity sales and the use of coal and oil. Electricity supplies were rationed, and uneconomic oil was used extensively, in order to conserve remaining coal stocks over a longer period. It is estimated that these measures resulted in a reduction in coal consumption of some 5 million tons, and the use of nearly 2 million tce of uneconomic oil.

Higher oil consumption during 1972 was due to the increasing demand from the three new oil-fired stations (Fawley, Kingsnorth and Pembroke) and from stations converted from coal. As expected, the use of natural gas increased following the

conversion of West Thurrock power station in the south-east from coal to gas-firing, while the nuclear energy increase was accounted for by the new Wylfa station in North Wales.

National Coal Board (NCB) disposals to CEGB in 1972 at 55.4 million tons were nearly 10 million tons lower than in 1971, but forwardings were substantially affected by the miners' strike, during which period it was expected to have supplied CEGB with at least 8 million tons.

CEGB coal stocks at the end of 1972 totalled 15.3 million tons (the highest ever for the time of year) and were over 1 million tons higher than a year ago.

(ii) South of Scotland Electricity Board (SSEB) and North of Scotland Electricity Board (NOSEB)

The high level of SSEB coal stocks at the start of 1972 enabled Scottish power stations to operate more or less normally during the miners' strike.

The increased use of primary fuel (nearly 1 million tce) in 1972 was almost entirely attributable to coal, and mainly reflects the increasing contribution from Longannet, which ended the period with all four 600 MW sets working, and burnt in one week 120,000 tons out of SSEB's total coal consumption of 190,000 tons.

Disposals to SSEB in 1972 at nearly 6 million tons were 200,000 tons lower than in 1971.

Coal stocks at SSEB's stations at the end of 1972 were 1.5 million tons, marginally lower than a year ago.

(b) Coke ovens

Coal consumption at coke ovens during 1972 as a whole was 2.8 million tons lower than the previous year; after the middle of September, however, consumption was consistently higher than in 1971.

The higher level of imports meant that there was no immediate corresponding recovery in the level of disposals; after the end of the strike period NCB disposals of coking coal at 16.3 million tons were about 400,000 tons lower than in the corresponding period in 1971.

Coal stocks at coke ovens at the end of the year at 1.9 million tons were 100,000 tons higher than the corresponding 1971 level.

(c) Industrial

Despite increased industrial activity following the miners' strike, the level of coal consumption in the industrial sector continued to show a marked reduction on the levels recorded the previous year. This reduction was mainly due to the decline in I.C.I. business and small-scale industrial business following the miners' strike in January and February.

Disposals to the new Alcan smelter did not reach the expected levels during the year as the smelter did not achieve the expected production rates at the end of 1972 on account of a slump in the world aluminium trade.

Coal stocks in the industrial market at 23 December totalled 1.4 million tons, representing over six weeks' winter consumption. Since the end of the miners' strike over 600,000 tons have been added to stock.

(d) Household sector

Consumption of house coal (including concessionary coal) in 1972 was nearly 3 million tons lower than in 1971. Apart from a period between the end of August and the introduction of winter prices on 1 October, merchants' sales were consistently below 1971 levels. Disposals of house coal during the year as a whole were 2.4 million tons lower than in 1971; however, after the end of March, the need to build up merchant stocks resulted in disposals in excess of budget levels.

Merchant stocks of house coal on 23 December totalled 1 million tons, marginally above those held at the same time in the previous year.

Demand for natural smokeless fuels remained at a high level throughout the year but there were no difficulties in meeting the demand for manufactured smokeless fuels.

3. International trade

(a) Imports

During 1972, 5 million tons of coal, 300,000 tons of manufactured fuel and 100,000 tons of coke were imported.

(b) Exports

Exports during 1972 totalled 1.7 million tons, 900,000 tons less than in 1971. Exports were curtailed by the limited availability during the strike and the partial Government embargo on exports, which was lifted on 17 July 1972.

4. Longer term factors

The Coal Industry Act became law on 22 March and its provisions have important implications for the industry over the next few years.

(a) Capital reconstruction

NCB's outstanding liabilities will be reduced by about £475 million; £275 million of this will be used to write down the net book values of collieries and other fixed assets. This will save the Board about £16 million a year in depreciation charges. The remainder is to write off the accumulated deficit.

(b) Borrowing powers

The new limit is £550 million (£900 million now), which can be increased by Parliamentary Order to £700 million (£950 million). The permitted accumulated deficit is reduced to £50 million (£75 million now) though it can be raised by statutory

instrument to the present maximum of £100 million. With Ministry consent the Board may borrow in sterling from the European Coal and Steel Community or from the European Investment Bank. The Minister may also give the Board general authority to borrow temporarily in sterling on the money market. But, apart from this, the Board is still unable to borrow sterling long-term except through the Ministry.

(c) Social costs

Grants covering 50 per cent of the Board's costs arising from manpower redeployment and contraction will continue to be paid. They cover statutory redundancy payments, compensation for early retirement, rehousing, removal and resettlement expenses and welfare activities. The expenditure limit for the three years ending March 1976 is £60 million and can be extended by a further two years to a total of £100 million.

(d) Improved redundancy scheme

The miners' redundancy payments scheme is to be extended and improved with a new item added - the cost of concessionary coal. Discussions will be held with the unions on the improved scheme. Government grant limits are £60 million over the next three years and £100 million if the scheme is extended to March 1978.

(e) Increased pensions

Contributions towards the NCB's share of higher benefits under the Mineworkers' Pension Scheme are limited to £25 million over three years and to £40 million over five years. Higher pensions are being discussed by the Board and the unions.

(f) Power stations

Authorization to meet the cost of extra coal used by the Central Electricity Generating Board and the South of Scotland Electricity Board has been renewed, for up to £50 million over three years; this can be increased to £100 million.

(g) Stocks

Grants up to a maximum of £40 million (£70 million if extended to 1978) will be available to cover the cost of unavoidable excess stocks of coal and coke up to a maximum of 30 million tons.

(h) Coking coal subsidies

Grants will be made for coking coal used by iron and steel industry blast furnaces in the United Kingdom or ECSC countries. This brings the United Kingdom into line with ECSC countries and will help coking coal pits. The upper limits of Government grants are £45 million over three years and £75 million over five years.

(i) Regional grants

These grants can amount to a maximum of £210 million over three years. The industry is heavily concentrated in assisted areas - with 43 per cent of manpower in development areas, 33 per cent in assisted areas and 16 per cent in derelict land clearance areas. The level of grant each year will be decided after a detailed review and will enable the Board to moderate the rate of contraction of the industry in the affected areas.

This legislation will have an important effect on the United Kingdom coal industry, and agreements have already been reached with the CEEB and the SSEB whereby, starting in 1972, the former will increase its annual consumption of coal to about 55 million tons (an increase of 7 million tons) and the latter to about 8 million tons (an increase of 1 million tons). This new agreement will play a major part in maintaining the industry's size and viability. About 50 million tons of the coal will be supplied from the Midlands and Yorkshire.

PRODUCTION FOR CALENDAR YEAR 1972

<u>TOTAL NCB DISPOSALS</u>		(million tons)	
		<u>1972</u>	<u>1971</u>
Gas		0.5	1.5
Electricity CEEB		55.4	65.3
Scottish		5.9	6.2
TOTAL		61.3	71.5
Coke ovens		18.7	22.9
Industry & miscellaneous		13.3	18.3
Domestic (bituminous)		10.0	12.4
Domestic (natural smokeless)		1.5	1.7
Domestic (manufactured fuel)		4.4	4.6
Other inland consumption		1.5	1.8
Miners coal and colliery consumption		3.6	4.0
Exports		1.7	2.4
TOTAL		116.5	141.1

COAL SUPPLIES
FIRST 52 WEEKS OF YEAR

	1972 million tons	1971 million tons	Difference	
			million tons	%
<u>PRODUCTION</u>				
NCB deepmined	106.37	133.21	-26.84	- 20.15
Opencast & other coal	11.27	11.61	- 0.34	- 2.93
Total	117.64	144.82	-27.18	- 18.77
Total disposals	116.46	141.64	-25.18	- 17.78
<u>CONSUMPTION</u>				
Collieries	1.37	1.56	- 0.19	- 12.18
Power stations	65.58	71.70	- 6.12	- 8.51
Gas works	0.57	1.82	- 1.25	- 68.68
Coke ovens	20.36	23.18	- 2.82	- 12.17
Other conversion industries	4.62	4.41	+ 0.21	+ 4.76
Industry	11.50	15.58	- 4.08	- 26.19
Transport	0.10	0.18	- 0.08	- 44.44
Domestic				
House coal	12.40	15.37	- 2.97	-119.32
Anthracite and dry steam coal	1.67	1.62	+ 0.05	+ 3.09
Other final consumption (partly estimated)	2.87	3.29	- 0.42	- 12.76
Total internal consumption	121.04	138.71	-17.67	- 12.74
Exports	1.74	2.62	- 0.88	- 35.59
Total internal consumption and exports	122.78	141.33	-18.55	- 13.13
Average temperature (30 year averages = 9.6°C-49.3°F)	9.3°C 48.7°F	9.9°C 49.8°F	- 0.6°C - 1.1°F	

(million tons)

	Stocks at 23 December			Change in stock over 52 weeks	
	1972	1971	Difference	1972	1971
Distributed	21.92	20.86	+ 1.06	+ 1.06	+ 7.40
Undistributed	10.93	10.22	+ 0.70	+ 0.70	+ 3.13
Total	32.85	31.09	+ 1.76	+ 1.76	+10.53

Distributed stocks at 23 December	1972	1971	Difference	Change in stock over 52 weeks	
				1972	1971
Power stations	16.79	15.71	+ 1.08	+ 1.08	+ 6.13
Gas works	0.05	0.07	- 0.02	- 0.02	- 0.21
Coke ovens	1.88	1.78	+ 0.10	+ 0.10	+ 0.35
Industry	1.35	1.51	- 0.16	- 0.16	- 0.07
House coal	1.05	0.93	+ 0.12	+ 0.12	- 0.08
Anthracite	0.44	0.44	-	-	+ 0.23
Other	0.36	0.42	- 0.06	- 0.06	+ 0.03

0. SWEDEN

Some information on the general economic situation in 1972 and on the prospects for 1973

The gross national product increased in 1972 by only 2.2 per cent. Industrial production rose by 2.7 per cent which was about the same as the previous year. The average rise in prices was 6 per cent. Total Swedish exports amounted to 41.7 million Skr and total imports reached 38.4 million Skr. In volume exports went up by 6.1 per cent and imports by 4.5 per cent.

For 1973 the gross national product is now expected to increase by 5.0 per cent and industrial production by 8.5 per cent. The latest forecast regarding the export volume is an increase in 1973 of 13.5 per cent, while the volume of imports is expected to rise by 12.0 per cent.

Developments in the iron and steel industry

Swedish steel consumption and production stagnated in 1972. For the third year in succession, actual consumption amounted to 4.1 million tons. Deliveries from Swedish steel works to the home market decreased in 1972 by 7 per cent, while

total imports of finished steel 1/ rose by 13 per cent to a new record figure of 1.76 million tons. A sharp increase in total finished steel exports - by 14 per cent to a new record of 1.55 million tons - compensated for the decline in home deliveries and total production remained unchanged as compared with 1971. Production of stainless steels and other alloy steels increased, however, by 12 and 3 per cent respectively, while output of ordinary steel fell by 2 per cent.

Swedish steel prices for ordinary steel products, in line with continental export prices, were raised several times in the second half of the year.

The order situation at the steelworks improved by the end of 1972, when orders on hand were 16 per cent higher than at the beginning of the year.

The effective capacity of crude steel production in 1972 was almost unchanged compared with 1971. A 105 ton LD converter and a 35 ton electric ore furnace were installed at the end of the year. Three Thomas converters were shut down, and one basic open-hearth furnace taken out of service for conversion to the acid process. In addition, an RH-degassing unit, a continuous casting plant and two cold-strip rolling mills were put into operation.

Essential features in the use of solid and liquid fuels in Sweden during 1972

In 1972 the largest gas company in Sweden changed from coal to petroleum products as the raw material for producing town gas. As a result of this, coal consumption, compared with 1971, continued to decrease, from 1.5 million tons to 1.2 million tons, a decline of 20 per cent. Compared with the previous year, coke consumption - probably temporarily - fell by 10 per cent, from 1.9 million tons to 1.7 million tons.

During 1972 deliveries of petroleum products increased by only 2 per cent, as compared with 1971.

The heating requirement in 1972, measured in daily temperature difference, was 3 per cent lower than during a normal year, i.e., almost the same as in 1971.

There are no official fuel prices in Sweden. The change in c.i.f. prices, however, gives an indication as to the trend of import prices. The market price can generally be assumed to follow this trend, with a certain time lag, however.

1/ Imports of finished steels under ECSC arrangements amounted to 1.44 million tons and exports to 1.20 million tons, increases of 9 per cent and 7 per cent respectively.

The c.i.f. price according to official statistics is shown in the table below (in Swedish crowns)

	4th quarter 1969	4th quarter 1970	4th quarter 1971	4th quarter 1972
Coal total, Skr/ton	73	101	125	108
Coke total, Skr/ton	142	199	225	199
Gas/diesel oil, Skr/cu.m.	98	121	127	119
Fuel oil, Skr/cu.m.	60	86	82	82

Deliveries to consumers in 1972 are shown in the table below (in thousands of tons).

	Coal ^{a/}	Coke ^{a/}	Gas/Diesel oil	Fuel oil
Domestic sector	40	100	6,070	4,170
Industry	310	1,600	905	5,230
Power stations, etc.	--	--	55	2,860
Gas works and coking plants	761	--	--	30
Other	21	10	2,391 ^{c/}	924 ^{d/}
Total	1,132	1,710 ^{b/}	9,421	13,214

a/ Actual consumption

b/ Including 647,000 net produced in gas works and coking plants.

c/ Of which 1,610,000 for road transport and bunkering.

d/ Of which 800,000 for bunkering.

At the turn of the year 1972/73 the supply situation in Sweden for coal and coke was normal.

Through the opening of a new coking plant the consumption of coking coal will increase in a few years by approximately 1 million tons.

P. SWITZERLAND

1. Introduction

The Swiss economy is going through a phase of intensified economic activity and over-expansion which continued unabated last year. Up to the end of 1972, demand remained steadily much higher than supply in all sectors, with, as a consequence, full utilization of capacities, increased investment requirements, continuous adaptation of the labour market and spiralling prices.

Activity in the iron and steel industry did not change appreciably between 1971 and 1972.

Although in 1972 economic activity was accompanied by an increase in over-all energy consumption, coal continued to decline. The increase in energy consumption is still due to petroleum products, electricity and imported gas. The definitive percentage breakdown has not yet been established for the various sources of energy. The share of coal should, however, according to provisional calculations, amount to roughly 2 per cent (1971: 2.8 per cent).

2. The coal market situation

The situation on the coal market did not change appreciably between 1971 and 1972. The change-over from coal to other sources of energy is going ahead, although at a slightly slower pace. Besides fuel oil, electric storage heating and especially heating by natural gas have recently come to the forefront.

The transition to natural gas was slowed down somewhat since the supply capacity of the distribution undertakings was not large enough and sometimes also the quantities of gas available were insufficient to cover existing needs.

As for industry, new conversions are not very likely in the near future. Coal consumption in this sector generally maintained the level of the previous year.

3. Consumption

Total consumption of solid fuel in 1972 can be put at roughly 535,000 tons, i.e. some 16 per cent less than the previous year. Of this figure, 167,000 tons went to gas-works and 458,000 tons (including coke from gas-works) to industry, crafts and households.

4. Movement of stocks

Stocks at the end of 1972, taken as a whole, were 12 per cent lower than at 31 December 1971. All sectors of the economy seem to be trying to reduce stocks as consumption falls off. Stocks held by industry, in particular, are sometimes regarded as too high, hence some attempt to liquidate old stocks. The relatively slight decline in importers' stocks is to be attributed to obligations under existing delivery contracts.

5. Demand

The fact that the share of coal on the Swiss energy market again dropped in 1972, together with the considerations mentioned under "movement of stocks", means that the opinion previously given concerning foreseeable demand for the near future must stand (see ECE/COAL/2, chapter II, M).

The experts' assessment of the position of the Swiss coal market in 1972 thus leads to the same conclusions as the preceding year.

Q. CZECHOSLOVAKIAIntroduction

The main source of primary energy in Czechoslovakia will continue to be solid fuel. In 1972 solid-fuel consumption in industry and transport accounted for roughly 75 per cent of total consumption, in tons of coal equivalent. Most of the brown-coal output is used for the production of electric power, while hard coal is mainly used for producing coke at iron and steel works and mine coking plants and for metallurgical requirements.

In 1972 solid-fuel production was not only amply sufficient to cover requirements, but also had a favourable effect on the volume of consumers' stocks, which rose during the year by approximately 24 per cent.

1. Demand

Total demand for solid fuel declined by 0.5 per cent in 1972 compared with 1971. This decline was particularly marked in the demand for hard coal for power stations, but there was an increase in the demand for brown coal for electric power production and for hard-coal coke to supply household needs.

Solid-fuel consumption by sector showed a similar trend. The following table gives the 1972 consumption expressed as a percentage of the 1971 figure: (1972/1971 index number)

	Hard coal	Brown coal	Coke
Industry in general	99.0	101.6	99.5
sectors:			
Power stations	95.9	107.4	-
Coking plants	101.3	-	-
Briquetting plants	-	94.3	-
Steel works and engineering plants	105.6	97.7	99.6
Other	85.2	94.9	97.6
Transport	75.8	88.1	90.2
Retail trade, groups, and household	88.4	96.2	111.1
Other	88.6	88.8	84.2
Total	97.4	100.1	101.2

Brown coal consumption for electric power production by the thermal power stations of the Federal Ministry of Fuel and Energy increased in 1972 in accordance with the expected development of the energy sector. There was also an increase in the consumption of hard coal for coking.

Coal consumption in the transport sector continued its downward trend in 1972 as a result of the modernization of rail transport and the planned reduction in the share of steam traction on the railways.

The reduced consumption of hard coal and brown coal in the group and household sector was due to the mild winter. At the same time the increased coke consumption reflects the continued demand by the population for a more hygienic type of solid fuel.

2. Supply

Extraction and production (thousand tons)	1972	1971	1972/1971 index number
Hard coal	27,924	28,818	96.8
Brown coal and lignite	34,930	34,161	100.9
Briquettes	1,343	1,366	98.3
Semi-coke	474	911	52.0
Hard-coal coke	10,679	10,462	102.0

The output of hard and brown coal was 125,000 tons less than in 1971.

The mean calorific value of hard coal increased by 14 kcal compared with 1971, while that of brown coal remained the same.

The consolidation of solid fuel supplies in 1972 and the downward trend of consumption made it possible to abolish the 4 per cent surcharge on solid-fuel prices.

Pithead stocks showed the following changes during the year:

Hard coal, a drop of 500 tons;

Brown coal, an increase of 119,600 tons.

These changes did not affect the supply and demand situation. In view of the general trend in solid-fuel supplies caused by two extremely mild winters, output remained largely at the 1971 level.

3. International trade

In 1972 exports and imports of solid fuel, expressed as a percentage of the 1971 figure, were as follows: (1972/1971 index number).

	Total	Socialist countries	Capitalist countries
<u>Exports</u>			
Hard coal	96.5	86.2	127.0
Brown coal	101.9	125.2	101.3
Coke	103.5	103.6	103.2
<u>Imports</u>			
Hard coal	101.5	101.5	-
Brown coal and briquettes	89.3	89.3	-
Coke	90.5	90.5	-

Exports to the eastern European countries are regulated by long-term agreements, and the increase in hard-coal exports was set against payments made in 1971. Hard coal was imported only for the energy sector.

Exports to western European countries are based on agreements for exchange of goods. Deliveries and receipts are specified in more detail in the annual protocols relating to that exchange. Relations with western European countries are determined by Czechoslovakia's participation in the international division of labour. The main object of the country's trade policy regarding exports to western European countries is to ensure the long-term stability of exports by long-term contracts. The aim is, however, to safeguard not only the unilateral interests of Czechoslovakia's foreign trade but also the interests of consumers in the long-term satisfaction of their needs.

In 1972 the prices of solid-fuel exports to western European countries, expressed as percentages of the 1971 prices, were:

	<u>1972/1971 index number</u>
Coking coal	80.3
Coke	83.3
Brown coal (briquettes only)	99.4

These prices were related to the evolution of supply and demand on western European markets and, besides displaying a change of pattern, were also influenced by circumstances affecting western countries' currency systems.

4. Long-term trends in supply and demand

In view of the existing geological reserves of brown coal and the fact that it can be mined by comparatively low-cost open-cast methods, it is thought that solid fuel, and especially brown coal, will continue to be the main source of primary energy. However, a decline is expected in the share of solid fuel and an increase in that of liquid and gaseous fuel.

Despite the steadily-diminishing share of solid fuel in the country's fuel-energy balance, the output of brown and hard coal in absolute figures is expected to show a slight increase up to 1975.

Solid-fuel output in the next few years will be ensured by increasing present productive capacity and by considerable new development.

Of decisive importance for the long term is the increase in the output of brown coal for thermal electric power stations. Power-station demand for hard coal will continue to decline, but the demand for coal suitable for coking is expected to increase.

In addition it is expected that an ever-increasing proportion of primary resources will be converted into secondary forms of fuel and energy.

R. TURKEY

1. Demand

Consumption of solid fuel by sector in 1972
(State production only)

(Tons)

Consuming sectors	Hard coal	Lignite	Coke	Briquettes
Transport	803,242	134,366	2,106	22,405
Iron and steel works	2,010,376	-	-	-
Power stations	1,017,258	1,065,061	-	-
Town gas works	287,297	-	-	-
Other industries	189,740	1,338,247	89,312	-
Heating	197,423	2,228,613	292,347	21,131

2. Supply

Production

good coking coal	4,175,944
weak coking coal	465,517
Total	4,641,461

Productivity

underground	868 kg/ms
over-all	784 kg/ms

Cost of production

Ex-mine	214.40 TL/ton
Over-all (FAS, FOB)	266.47 TL/ton

Pithead stocks

beginning of the year	6,534 tons
end of the year	9,817 tons

Coke (TKI only)

Production	30,244 tons
Cost of production	358.06 TL/tons

Lignite (TKI^{1/} only)

	Subsidiary companies			
	<u>GLI</u> ^{2/}	<u>ADL</u> ^{3/}	<u>OAL</u> ^{4/}	<u>SLI</u> ^{5/}
Production	4,394,174	216,365	150,307	34,697
underground productivity Kg/ms	2,978	1,094	1,445	600
Overall productivity	2,556	641	858	424
Cost of production (FOB, FAS)	76.90	165.89	118.05	254.30
Pithead stocks beginning of year (tons)	1,248,470	809	21,902	-
end of the year	1,084,925	337	44,508	-

3. International trade

	<u>Hard coal</u>	<u>Lignite</u>	<u>Coke</u>	<u>Briquettes</u>
Imports	-	-	-	-
Exports	-	-	-	-

S. UNION OF SOVIET SOCIALIST REPUBLICS

In spite of the accelerated growth in the consumption of oil and natural gas, the USSR coal industry is steadily expanding. The share of coal in the fuel and energy balance in 1972 was 34 per cent.

In that year, the USSR produced 400.4 million tons of oil (13.4 per cent more than in 1970), 221,400 million m³ of natural gas (+ 11.8 per cent) and 655.2 million tons of coal (+ 5 per cent).

The main coal consumers are the thermal power stations, iron and steel works and the housing sector. Altogether, these branches take up nearly 80 per cent of the total consumption of solid fuel.

The underground and opencast mines produce coal of a range of qualities and types sufficient to meet the requirements of the various consumers.

Coal is the only fuel used in blast furnaces and for agricultural purposes.

Opencast working, the most economic method of extraction, is expanding rapidly and its share in overall coal production has reached 29 per cent.

1/ TKI: Turkish Coal Enterprises.

2/ GLI: Western Lignite Company.

3/ ADL: Alpagut-Dodurga Lignites.

4/ OAL: Central Anatolian Lignites.

5/ SLI: Eastern Lignites.

The coal mines are constantly developing their methods of production and modernization. In 1972, average output per colliery was 807,000 tons, 13.5 per cent above the 1970 figure; 47 collieries recorded an annual output in excess of 1.5 million tons, supplying 20 per cent of all underground production.

Average daily output per face has increased by 16 per cent in two years; it was 384 tons in 1972 (787 tons for fully-mechanized faces).

Daily output exceeded 1,000 tons at 339 faces. Some have reached even higher levels. At the "Mikhailovskaya" pit, in the Karaganda coalfield, a face 120 m long, worked by a KM-81E mechanized unit, in 31 working days produced 177,000 tons of coking coal, an average daily output of 5,710 tons; the figures for the best days were 7,100 and 7,300 tons. Average output at the face per manshift was 102 tons.

At the "Krasny Partisan" mine in the Donetz coalfield, 208,000 tons of coal were won in 31 working days from a 215 m face with a KM-87DN mechanized unit, giving an average of 6,705 tons a day; the maximum day output was 8,200 tons, and output at the face averaged 105 tons/ms.

At the "Maïskaya" pit in the Donetz coalfield, high output figures were obtained using a coal plough with IMKS powered roof support. Average daily production from the face was 7,600 to 8,100 tons, 40 to 45 tons per gang.

Apart from particular faces, many collieries have achieved a high degree of concentration in their operations as a whole. In 1972, 25 collieries recorded an average daily production in excess of 1,000 tons per face for all faces, giving the maximum possible output.

The energy/labour factor went up 11.8 per cent in relation to 1970: as a result of technical advances, and was 24,300 kWh per worker in 1972. The same advance is reflected in the value of capital equipment per worker, which rose from 11,800 to 14,000 roubles, an increase of 18.6 per cent.

Improvements in technology and organization in both underground and opencast workings raised the output per coal-getting manshift by 13.3 per cent between 1971 and 1972, 10.5 per cent in the underground mines and 16.3 per cent in the open workings. Almost 70 per cent of this increase in output is due to greater concentration of underground operations and to mechanization of extraction processes. The increase in production over this period (31.1 million tons) has come entirely from the improvement in productivity.

The number of underground workers in the mines went down 3.3 per cent. Improvements in coal-cutting techniques resulted in a reduction of 4 per cent for coal getting. Through concentration of production and the grouping or modernization of collieries, the number of surface workers was brought down by 6.8 per cent.

Rapid progress is being made in coal preparation. In 1972 the preparation plants treated 310 million tons of coal, 56.2 per cent of the total volume of production (against 54.6 per cent in 1970). The most modern methods, including dense medium washing, are being more and more extensively used.

In the first half of 1973, the USSR produced 334.7 million tons of coal, 3 per cent more than in the corresponding period of 1972, and output per manshift went up by 6 per cent. A coal output of 668 million tons (3 per cent more than in 1972) is projected for 1973.

A programme of expansion for the coal industry is outlined in the Resolutions of the XXIVth Congress of the Communist Party of the Soviet Union. Coal output is forecast to reach 695 million tons in 1975, and productivity per face manshift should rise by 40 per cent compared with 1970. Integrated mechanized methods are expected to be in operation in at least 60 per cent of both flat and inclined seams.

ANNEX I - TABLES

Table A

APPARENT TOTAL CONSUMPTION OF PRIMARY ENERGY IN THE ECE REGION
(in million tce)

Region	1970	1971	1972	$\frac{1971}{1972} \%$	$\frac{1972}{1971} \%$
<u>Western Europe</u>	1,367	1,405	1,454	+ 2.8	+ 3.5
of which:					
Main coal-producing countries	930	951	980	+ 2.3	+ 3.0
Northern Europe	118	117	121	- 0.8	+ 3.4
Southern Europe	258	273	287	+ 5.8	+ 5.1
Other countries	62	64	66	+ 3.2	+ 3.1
<u>Eastern Europe</u>	457	477	483	+ 4.4	+ 1.3
Total Europe	1,824	1,882	1,937	+ 3.2	+ 2.9
USSR	1,055	1,112	1,145	+ 5.4	+ 3.0
United States	2,279	2,327	2,397	+ 2.1	+ 3.0
ECE region	5,158	5,321	5,479	+ 3.2	+ 3.0

Table B

SHARES OF SOLID FUELS AND THEIR MAIN COMPETITORS
IN THE PRIMARY-ENERGY MARKET OF THE ECE REGION
(excluding light petroleum products)

Region	Solid fuels			Black oils			Natural gas			Hydro and nuclear electricity		
	1970	1971	1972	1970	1971	1972	1970	1971	1972	1970	1971	1972
Western Europe	40	37	32	47	48	50	9	11	14	4	4	4
Eastern Europe	80	79	78	8	8	9	12	12	13	0.4	0.4	0.4
Europe ^{1/}	51	48	45	37	38	399	9	11	13	3	3	3
USSR ^{1/}	46	45	44	32	32	32	21	22	23	1	1	1
United States	28	26	27	20	20	22	50	52	499	2	2	2

^{1/} Including light petroleum products.

Table C

INTERNAL DELIVERIES OF HARD COAL TO SOME MAIN CONSUMING SECTORS
IN WESTERN AND EASTERN EUROPE

Total deliveries, and deliveries to some main sectors	1971 (million tons)	1972 (million tons)	1972 Distribution by main sectors	Change: $\frac{1972}{1971}$	
				million tons	%
<u>Western Europe</u>	371.5	331.2	100	- 40.3	- 10.8
of which:					
Coke ovens	124.6	117.5	35	- 7.1	- 5.7
Thermal power stations	136.5	118.4	36	- 18.1	- 13.3
Industry	38.7	37.6	11	- 1.1	- 2.8
Households	32.3	28.9	9	- 3.4	- 10.5
<u>Eastern Europe</u>	175.4	179.1	100	+ 3.7	+ 2.1
of which:					
Coke ovens	42.5	42.3	24	- 0.2	- 0.5
Thermal power stations	41.3	46.2	26	+ 4.9	+ 11.9
Industry	46.2	46.3	26	+ 0.1	+ 0.2
Households	26.1	25.5	14	- 0.6	- 2.3

Table D
PRODUCTION OF SOLID FUELS IN THE ECE REGION

	1971 (million tons)	1972 (million tons)	Percentage change
<u>Hard coal</u>			
Western Europe	326.3	285.9	- 12.4
of which:			
Major coal producers	309.2	268.5	- 13.2
Others	17.1	17.4	+ 1.8
Eastern Europe	186.7	191.8	+ 2.7
Total Europe	513.0	477.7	- 6.9
USSR	441.4	451.1	+ 2.2
United States	509.6	535.2	+ 5.0
World	2 184.0	2 208.1	+ 1.1
<u>Brown coal</u>			
Western Europe	160.8	167.7	+ 4.3
of which:			
Germany, Federal Republic of	104.5	110.4	+ 5.6
Eastern Europe	445.4	437.2	- 1.8
of which:			
German Democratic Republic	262.8	248.5	- 5.4
Total Europe	606.2	604.9	- 0.2
USSR	150.1	152.5	+ 1.6
United States	6.4	6.2	- 3.1
World	798.3	...	...
<u>Coke-oven coke</u>			
Western Europe	94.3	89.3	- 5.3
Eastern Europe	29.8	31.4	+ 5.4
Total Europe	124.1	120.7	- 2.7
USSR	78.3	79.8	+ 1.9
United States	52.1	54.9	+ 5.4
World	341.1		

Table E

RATE OF INCREASE IN OUTPUT PER MAN-YEAR
UNDERGROUND IN THE EUROPEAN HARD-COAL INDUSTRY

1965	+3.2
1966	+2.6
1967	+7.8
1968	+5.2
1969	+4.8
1970	+2.5
1971	+2.0
1972	-4.0

Table F

CHANGES IN OUTPUT PER MAN/SHIFT UNDERGROUND
(HARD-COAL MINING) IN SELECTED COUNTRIES
(in percentages)

Country	<u>1967</u> 1966	<u>1968</u> 1967	<u>1969</u> 1968	<u>1970</u> 1969	<u>1971</u> 1970	<u>1972</u> 1971
Germany, Federal Republic of	+11.6	+ 8.0	+ 3.9	+ 2.5	+ 1.9	+ 4.9
Belgium	+ 5.3	+ 6.2	+ 7.9	+ 9.2	- 0.3	+ 0.6
Spain	+ 8.5*	+ 6.5*	+ 2.2	+ 0.9	- 0.6	+ 3.7
France	+ 6.5	+ 4.7	+ 7.5	+ 4.8	- 0.6	+ 5.4
Hungary	+ 8.7	+ 8.0	+ 3.6	- 0.7	- 2.3	+ 1.4
Italy	+ 1.2	- 3.4	-10.5	+ 5.9	- 3.9	+10.9
Netherlands	+ 5.3	+ 4.2	+14.1	+10.3	+ 2.4	- 1.7
Poland	+ 7.1	+ 1.3	+ 2.9	+24.4	+ 3.2	+ 3.1
Ukrainian SSR	+ 1.4	+ 2.8	+ 3.5	+ 2.1	-	+ 2.3
Romania	+12.8 ^{a/}	...	+ 6.8	+ 3.1	-	...
United Kingdom	+ 5.3	+ 9.7	+ 5.3	+ 2.7	- 0.4	+ 0.03
Czechoslovakia	+11.5	+14.6	+10.8	- 2.3	+ 0.8	+2.3
Turkey	+5.4	- 0.4	- 7.0	- 2.3	-13.3	+42.7

^{a/} Including brown-coal (underground) 1966/65

Table G

UNDERGROUND EMPLOYMENT IN HARD-COAL MINES
(in thousands of men on the books, and percentage change)

Annual average

Country	End 1970	End 1971	End 1972	$\frac{1972}{1971}\%$
Germany, Federal Republic of	138	135	126	- 7
Belgium	29	27	25	- 7
Spain	33	33	33	+ 0
France	66	60	54	-10
Hungary	8	8	8	+ 0
Italy	0.8	0.7	0.6	-14
Ireland	0.6	0.4	0.3	-25
Netherlands	7	6	5	-17
Poland	208	209	213	+ 2
Romania ^{a/}	13	16*	19*	+19*
United Kingdom	196	192	185	- 4
Czechoslovakia	48	47	46	- 2
Turkey	14	19	15	-21
Yugoslavia	2*	2*	2*	+ 0*
Total Europe	764*	755*	732*	- 3.0*

^{a/} Including brown-coal mines

Table H
EUROPEAN TRADE IN HARD COAL AND PATENT FUEL
(in million t and percentage change)

Exports from Imports by	Western Europe		Eastern Europe		Total, Europe		USSR		United States		Grand Total	
	Mill. t	1972/ 1971	Mill. t	1972/ 1971	Mill. t	1972/ 1971	Mill. t	1972/ 1971	Mill. t	1972/ 1971	Mill. t	1972/ 1971
EEC	17.9	- 8.2	11.1	+12.1	29.0	- 1.4	3.5	-10.3	12.0	- 7.7	49.0	- 1.6
Other Western Europe	0.6	-14.3	5.6	- 1.8	6.2	- 3.1	2.9	+ 3.6	2.8	-22.2	12.8	- 3.8
Western Europe	18.5	- 8.4	16.7	+ 7.0	35.2	- 1.7	6.4	- 4.5	14.8	-10.8	61.8	- 2.1
Eastern Europe	0.1	+ 0	7.5	- 6.2	7.6	- 6.2	14.5	- 0.7	0.2	+10.0	22.4	- 3.4
Total Europe	18.6	- 8.4	24.2	+ 2.5	42.8	- 2.5	20.9	- 1.9	15.0	-10.2	84.2	-2.4
Japan	-	-	1.2	+ 9.1	1.2	+ 9.1						
USSR	-	-	9.7	+15.5	9.7	+15.5						
Others, bunkering	0.2	+ 0	1.3	+18.2	1.5	+15.4						
Grand total	18.8	- 8.3	36.4	+ 6.4	55.2	+ 0.9						

Table I

TRADE IN COKE IN THE ECE REGION

(in million t and percentage changes)

Exports from Imports by	Western Europe		Eastern Europe		Total, Europe		USSR		United States		Grand total	
	Mill. t	1972/1971 %	Mill. t	1972/1971 %	Mill. t	1972/1971 %	Mill. t	1972/1971 %	Mill. t	1972/1971 %	Mill. t	1972/1971 %
EEC	8.8	+ 2.2	0.07	+14.7	8.8	+ 2.7	-	-100	0.4	+22.0	9.5	+4.5
Other Western Europe	1.8	-10.1	1.0	+ 2.4	2.8	- 6.0	0.9	+30.6	0.1	+ 2.5	4.2	+1.4
Western Europe	10.6	- 0.1	1.07	+ 6.3	11.6	+ 0.5	0.9	+28.4	0.5	+16.4	13.7	+3.5
Eastern Europe	0.3	-48.0	2.8	- 1.0	3.2	+ 2.6	3.3	- 1.4	0.05	+ 3.9	6.6	-0.7
Total Europe	10.9	+ 1.0	3.9	+ 0.8	14.8	+ 0.9	4.2	+ 3.9	0.5	+15.1	20.3	+2.1
USSR	-	-	0.6	-22.9	0.6	-22.9						
Others, bunkering	0.6	-13.6	0.06	+14.3	0.6	- 8.4						
Grand total	11.5	- 0.1	4.6	- 2.5	16.0	- 0.6						

Table J
WESTERN AND EASTERN EUROPEAN HARD-COAL BALANCES

Balance	Western Europe			Eastern Europe		
	Change		Present level	Change		Present level
	Per cent	Absolute		Per cent	Absolute	
1. Men on books (underground) in thousands	- 6.1	-29	446	+ 2.1	+6	286
2. Output per man-year (underground), t	- 6.7	-45.9	641.0	+ 0.6	+3.8	670.6
3. Production, million t	-12.4	-40.4	285.9	+ 2.7	+5.1	191.8
4. ^{a/} Imports, million t (from outside the region)	+ 0.9	+ 0.4	43.3	- 2.0	-0.3	14.9
5. ^{a/} Exports, million t (to destinations outside the region)	+ 0	+ 0	0.3	+10.3	+2.7	28.9
6. Withdrawals from pithead stock, million t	+15.0	+ 3.6	27.6	-16.7	-0.7	3.5
7. Gross internal availabilities, million t	- 9.3	-36.4	356.5	+ 0.8	+1.4	181.3
8. Deliveries, million t, to:	-10.8	-40.3	331.2	+ 2.1	+3.7	179.1
(a) power stations	-13.3	-18.1	118.4	+11.9	+4.9	46.2
(b) coke ovens	- 5.7	- 7.1	117.5	- 0.5	-0.2	42.3
(c) industry	- 2.8	- 1.1	37.6	+ 0.2	+0.1	46.3
(d) households, issues to miners, small consumers	-10.5	- 3.4	28.9	- 2.3	-0.6	25.5
(e) others ^{b/}	-35.4	- 7.9	14.4	- 4.6	-0.7	14.6
(f) producers' own consumption	-15.8	- 2.7	14.4	+ 5.0	+0.2	4.2
9. Changes in importers' stocks, unaccounted fuels (statistical differences) ^{c/}	+18.2	+ 3.9	25.3	-51.1	-2.3	2.2

^{a/} Including patent fuels.

^{b/} Includes patent-fuel and briquetting plants, gas-works, railways, inland water transport and various other consumers.

^{c/} Among the statistical differences are those resulting from the inclusion of patent fuels under items 4 and 5.

Annex II

STATISTICAL ANNEX

Definitions and explanations

A. GENERAL REMARKS

In the following, some main definitions are given in order to clarify the statistical coverage of the tables. Details are to be found in the "Definitions and explanations" of the Annual Bulletin of Coal Statistics for Europe, Vol. III, New York 1969, if not otherwise stated.

Sources used are the Quarterly and Annual Bulletins of Coal Statistics for Europe and information made available by governments or contained in national statistical publications. In cases where these sources differed from each other, an attempt was made to maintain the series already established.

B. APPARENT CONSUMPTION

(a) Solid fuels

Net pithead production of hard coal and brown coal, plus or minus pithead stock changes, plus net trade (including trade in coke and other secondary products) and minus bunkers. Brown coal and its by-products have been converted to hard-coal equivalent of 7,000 kcal/kg on the basis of the following calorific equivalents:

- Czechoslovakia; France:	0.6
- Austria; Bulgaria; Hungary; Italy; Portugal; Spain; USSR; Yugoslavia:	0.5
- Other countries:	0.3

(b) Liquid fuels

Deliveries of refined products for internal consumption. Refineries' own consumption, synthetic fuels, lubricants, petroleum coke, bitumens and bunkers have not been included. "Black oils" means gas-oil, diesel oil and fuel oil. A coefficient of 1.43 has been used to convert tons of liquid fuel to coal equivalent.^{1/}

(c) Natural gas

Apparent consumption of **natural** gas corresponds to production, plus imports, minus exports, plus or minus changes in stocks, minus losses in transport and distribution. Production excludes useful liquid fractions and quantities of natural gas reinjected or used for drying. A coefficient of 142.857 or division by 7 has been used to convert Tcal of natural gas into kg of coal equivalent.

^{1/} Source: Oil Statistics, Special Committee for Oil, OECD, Paris.

(d) Hydro-electricity

Apparent consumption of hydro-electricity corresponds to total net production hydro-electric, nuclear and geothermal power plants. A coefficient of 0.125 has been used to convert kWh into kg of coal equivalent.^{1/}

C. INTERNAL DELIVERIES OF HARD COAL

"Total internal deliveries" = gross inland availabilities, which means production, plus imports, minus exports, minus bunkers, minus withdrawals from stocks. "Thermal power stations" includes those at mines. "Industry" means industrial end-consumers - iron and steel industries, chemical industries, other industries and construction, but excludes the transport sector. The "household sector" includes issues to miners. Sectors not enumerated are patent-fuel plants, briquetting plants, gas-works, railways, inland waterways, miscellaneous own consumption and unaccounted fuel (statistical differences).

D. DISTRIBUTED STOCKS

These include stocks at public utilities (gas-works, power stations), railways and - where applicable - at coke-ovens and patent-fuel plants. Stocks held by industrial undertakings are not included in the Belgian and Portuguese statistics. Merchants' stocks are not included in the statistics of Belgium, the Federal Republic of Germany, France and the Netherlands.

E. PRODUCTION

Hard-coal production is defined as net pithead production, i.e. it consists of gross production or coal raised to the surface, less the non-utilizable waste after screening and washing. Brown-coal production is gross production if expressed on a ton-for-ton basis.

F. HARD COAL, BROWN COAL, COKE

Coal with a gross calorific value over 5,700 kcal/kg on a moist, ash-free basis is defined as hard coal; coal below that level, as well as lignite, pechkohle, dried brown coal and hard brown coal is defined as brown coal. "Coke" means "hard-coal coke" and includes coke-oven coke, gas coke, semi-coke and coke breeze. "Brown-coal coke" includes high-temperature brown-coal coke.

G. PRODUCTIVITY

The figures on output per manshift are calculated on an international basis; net pithead production on a ton-for-ton basis; "miners underground" includes apprentices but not foremen, capital-construction workers and contractors' men. No adjustments have been made to allow for differences in the length of shift from one country to another.

H. TRADE

Trade figures exclude transit shipments. In principle, figures are exporters' figures, but in cases where these were not available, importers' figures were used. Exporters' and importers' figures hardly ever tally.

^{1/} Source: Annual Bulletin of Electric Energy Statistics for Europe, 1972, Vol. XVIII, New York, 1972.

TABLE 1
APPARENT CONSUMPTION OF COMMERCIAL SOURCES OF PRIMARY ENERGY IN EUROPE, THE UNITED STATES OF AMERICA AND THE UNION OF SOVIET SOCIALIST REPUBLICS
(IN '000 t COAL EQUIVALENT)

Country and Area	Gross production ^{a/}			of which											Total			
	1970	1971	1972	1970	1971	1972	1970	1971	1972	1970	1971	1972	1970	1971	1972			
Centre and North-West of Europe																		
Major coal producers																		
Germany, Federal Republic of	317 795	320 267	330 000	134 034	127 992	121 810	115 002	118 713	125 701	20 114	26 642	34 389	2 894	2 411	2 762	272 044	275 758	284 662
Belgium	53 682	55 399	61 000	19 758	16 294	16 969	24 058	24 291	26 122	5 133	7 228	9 236	37	20	73	48 986	47 833	52 400
France	193 044	201 474	210 000	56 527	52 049	49 290	32 617	31 794	30 906	12 350	14 580	17 364	7 720	7 185	7 825	159 214	165 406	172 393
Netherlands	66 186	67 606	78 000	7 521	5 249	4 387	21 048	18 477	18 557	24 231	31 634	40 823	43	48	38	52 843	55 408	63 805
United Kingdom	299 742	304 681	301 000	157 008	147 035	134 283	70 688	71 713	88 180	14 150	26 039	36 350	3 587	3 139	3 741	254 403	258 372	253 174
Total	930 071	951 429	980 000	372 848	349 059	312 757	322 413	334 994	360 476	77 978	106 123	138 762	14 251	13 201	14 439	787 490	803 377	826 434
Others																		
Austria	25 303	25 536	26 000	6 841	5 793	6 002	8 743	9 702	9 988	3 857	4 487	4 818	2 655 ^{b/}	2 096 ^{b/}	2 155 ^{b/}	22 096	22 078	22 963
Ireland	9 020	9 960	10 000	1 295	1 102	890	3 845	4 680	4 828	-	-	-	88	65	81	5 228	5 847	5 799
Luxembourg	5 965	6 155	6 500	3 584	3 331	3 250	1 674	1 574	1 776	18	24	161	109	132	115	5 385	5 061	5 342
Switzerland	21 598	22 653	23 000	702	506	413	12 527	13 240	13 428	17	70	151	3 666	3 686	3 619	16 912	17 502	17 611
Total	61 886	64 304	65 500	12 422	10 732	10 595	26 744	29 196	30 620	3 872	4 581	5 130	6 528	5 879	5 970	49 621	50 486	51 735
Northern Europe																		
Denmark	28 799	26 471	28 000	3 702	2 358	2 318	20 304	19 828	20 842	-	-	-	3	3	3	24 009	22 189	23 163
Finland	19 171	20 302	22 000	3 981	3 571	3 295	11 832	12 036	13 340	-	-	-	1 169	1 309	1 257	16 982	16 916	17 892
Norway	18 708	20 396	21 000	1 222	1 168	1 032	7 222	6 931	6 977	-	-	-	7 158	7 813	8 454	15 602	15 912	16 463
Sweden	51 003	49 363	50 000	2 586	2 513	2 072	32 933	30 103	30 580	-	-	-	5 199 ^{b/}	6 515 ^{b/}	6 905 ^{b/}	40 718	39 131	39 557
Total	117 681	116 532	121 000	11 491	9 610	8 717	72 281	68 898	71 733	-	-	-	13 589	15 640	16 619	97 311	94 148	97 075
Southern Europe																		
Spain	50 143	56 861	60 000	15 638	15 832	15 729	24 042	25 442	27 911	168	529	1 029	3 550	4 082	3 550	43 398	45 885	48 259
Greece	11 195	13 009	15 000	2 774	3 684	3 995	5 081	6 375	7 462	-	-	-	329	331	334	8 184	10 390	11 791
Italy	144 896	143 850	151 000	13 757	12 768	12 723	74 410	75 913	78 849	14 890	16 955	19 682	5 826	5 685	6 060	108 863	111 327	117 360
Portugal	6 061	7 201	8 000	984	738	773	2 581	3 300	3 598	-	-	-	714	758	873	4 279	4 796	5 244
Turkey	16 930	18 674	20 000	5 862	6 040	7 286	8 890	10 050	-	-	-	-	376	298	375	13 524	15 099	16 465
Yugoslavia	29 337	33 084	33 000	16 183	18 013	17 631	5 016	6 253	5 894	1 381	1 588	1 962	1 833	1 938	2 248	24 413	27 792	27 735
Total	277 062	272 679	287 000	55 198	56 946	56 891	118 416	126 179	133 764	16 439	19 072	22 173	12 628	13 092	13 446	202 681	215 289	226 614
Total Western Europe	1 207 400	1 204 944	1 267 000	428 046	406 005	369 648	440 829	461 173	494 240	94 417	125 195	160 935	26 879	26 293	27 885	1 010 171	1 018 666	1 053 048
Eastern Europe																		
Bulgaria	33 423	35 294	36 000	20 132	19 927	19 943	5 550*	5 900*	6 250*	571*	393*	264*	269 ^{b/}	271 ^{b/}	262 ^{b/}	26 522*	26 491*	26 719*
Hungary	33 111	34 090	33 000	19 352	18 982	17 710	4 705	4 849	5 182	4 123	4 631	4 870	11	12	13	28 191	28 474	27 775
Poland	138 913	143 233	149 000	119 620	122 509	128 312	2 854	3 006	2 949	7 316	7 703	7 943	234	239	240	130 024	133 457	139 444
German Democratic Republic	103 018	107 558	104 000	88 808	89 882	85 070	6 526*	7 150*	7 865*	686	1 742	2 301	204	203	192	96 224*	98 587*	95 428*
Romania	56 772	60 896	65 000	13 042	14 200	14 718	6 076*	6 554	7 031*	33 148	35 391	37 800*	347 ^{b/}	318 ^{b/}	318 ^{b/}	52 613*	56 707*	60 467*
Czechoslovakia	91 400	96 007	96 000	76 411	78 852	78 024	6 492	7 749	8 191	2 660	2 971	3 294	456	333	349	86 019	89 905	89 858
Total Eastern Europe	456 637	477 078	483 000	337 365	344 352	343 777	32 203*	35 206*	37 168*	48 504*	52 431*	57 472*	1 521	1 610	1 974	419 593*	435 001*	439 892*
Total Europe	1 664 037	1 682 022	1 750 000	765 411	750 357	713 425	473 032	516 379	531 408	142 921	177 626	223 077*	48 447	49 522	52 448	1 556 696*	1 596 903*	1 641 729*
USSR	1 054 689	1 111 758	1 145 000	484 487	496 753	509 210	...	...	...	221 110	248 887	262 936	15 547 ^{b/}	15 762 ^{b/}	15 362 ^{b/}	...	...	...
United States of America	2 278 786	2 327 443	2 397 000	485 013	458 377	484 715	338 498	355 315	403 100	874 442	908 669	880 542	34 133	38 503	41 451	1 732 086	1 760 864	1 809 808

a/ Including light petroleum products not shown in breakdown total.

b/ Including geothermal electricity amounting to:

and nuclear energy amounting to:

	1970	1971	1972		1970	1971	1972
United States	66	68	182	Germany, Federal Republic of	708	684	1 088
Italy	318	310	300	Belgium	6	-	1
				France	644	1 093	1 725
				Italy	375	399	430
				Netherlands	43	48	38
				Spain	107	52	107
				Sweden	7	11	183
				German Democratic Republic	53	46	44
				United Kingdom	2 851	3 002	3 205
				United States	2 725	4 737	6 754

c/ Gross production.

d/ Gross production of hydro power stations.

TABLE 2
PERCENTAGE CHANGE IN ENERGY CONSUMPTION AND CERTAIN ECONOMIC INDICATORS^{a/}

COUNTRY	% change in production of pig-iron and blast-furnace ferro-alloys a/ (1)			% change in production crude steel (ingots and steel for castings) a/ (1)			% change in the index of industrial production b/ a/ (2)			% change in gross national product at market prices a/ (4) b/ c/			% change in apparent consumption of commercial sources of primary energy a/ (3)			% change in apparent consumption of solid fuels a/ (3)		
	1970 1969	1971 1970	1972 1971	1970 1969	1971 1970	1972 1971	1970 1969	1971 1970	1972 1971	1970 1969	1971 1970	1972 1971	1970 1969	1971 1970	1972 1971	1970 1969	1971 1970	1972 1971
Community																		
Germany, Federal Republic of	-0.4	-10.8	6.7	-0.4	-10.4	8.4	6.9	1.9	3.8	5.8	2.7	2.4	8.0	6.8	3.0	-0.6	-4.5	-4.8
Belgium	-4.1	-4.1	13.2	-1.2	-1.3	16.8	3.0	3.0	6.5	6.2	3.7	3.4	10.0	3.2	10.1	-7.6	-17.5	4.1
Denmark	5.7	6.1	-11.4	-1.6	-3.4	5.7	2.8	2.7	5.2	3.3	3.8	4.0	14.6	-9.1	5.8	-12.1	-36.3	-12.7
France	7.5	-2.2	3.6	3.6	3.6	5.4	7.0	5.3	8.1	5.3	5.0	5.4	4.6	4.4	4.2	3.4	-8.3	-12.6
Ireland	-	-	-	1.0	1.0	1.0	4.7	3.9	4.3	2.3	3.4	2.8	2.8	10.4	0.4	6.3	-14.4	-13.2
Italy	7.2	2.4	18.4	8.2	1.6	13.5	4.4	-2.7	4.1	4.4	1.2	3.1	11.4	-4.2	5.0	4.7	-7.2	-0.4
Luxembourg	-1.1	-4.6	1.8	-1.1	-4.0	4.1	1.0	-1.6	4.8	3.8	0.7	2.2	10.0	3.2	5.6	2.6	-7.6	-1.2
Netherlands	1.0	7.6	14.1	6.8	6.8	9.9	10.0	6.2	8.6	6.3	4.5	3.5	10.3	2.1	15.4	-2.4	-30.2	-16.4
United Kingdom	6.1	-12.8	-0.7	6.5	-12.4	4.7	6.8	0.8	3.2	2.2	1.6	3.4	4.6	2.4	-1.8	-3.1	-4.7	-15.8
Total European Community	2.0	-7.1	5.7	2.5	-7.2	8.6	4.8*	2.4*	5.5*	4.6	3.0	3.4	8.1	1.8	3.3	-3.1	-6.7	-9.3
Others																		
Austria	6.2	-5.7	-1.1	3.9	-2.9	2.8	8.4	6.5	6.7	7.8	5.2	5.5	14.4	0.9	1.8	7.7	-15.3	3.6
Spain	24.4	7.4	14.4*	24.8	8.0	15.5*	9.6	3.7	17.4	5.8	4.7	7.1	10.8	13.4	5.8	6.1	1.2	-0.6
Finland	-0.6	-14.4	14.4	1.5	-12.3	42.0	10.0	-0.6	14.0	9.3	2.3	4.4	10.2	5.9	8.4	28.2	-10.3	-7.7
Greece	-	-	-	1.0	1.0	1.0	0.2	11.3	12.8	7.7	5.2	4.2	8.6	16.2	15.3	14.3	32.4	8.4
Norway	-0.1	-7.5	3.5	-2.6	27.3	6.1	5.1	3.4	2.7	3.5	5.5	4.3	4.7	9.0	3.4	4.0	-44.0	-11.6
Portugal	-4.0	14.4	1.3	-3.8	7.0	3.2	10.4	-2.2	15.3	6.5	5.3	6.1	6.5	18.8	11.1	-7.8	-25.8	4.7
Sweden	4.4	4.4	-8.1	3.3	-4.1	-0.3	6.4	-0.7	2.7	4.7	-0.4	2.1	4.9	-3.2	1.3	6.1	-2.6	-17.5
Switzerland	12.1	4.3	-12.1	3.8	1.5	2.1	8.3	2.1	2.0	4.6	3.7	4.7	8.9	4.9	1.5	-8.1	-27.4	-18.4
Turkey	1.1	-10.7	-17.2*	2.1	-14.5	-16.9*	...	...	...	5.2	8.7	6.5	5.4	10.3	7.1	0.1	0.4	2.2
Yugoslavia	6.2	18.7	20.2	3.4	10.1	5.5	9.1	10.7	7.5	6.0	1.6	5.6	11.2	12.8	-0.2	5.7	11.3	-2.1
Total other countries of Western Europe	3.2	3.0	5.5*	4.2	1.8	7.3*	8.7*	4.0*	9.7*	6.2	5.2	5.8	10.2	7.1	4.1	6.7	1.7	-1.3
Total Western Europe	2.1	-5.1	5.1*	3.4	-5.4	8.4*	6.9*	3.2*	7.6*	5.4	4.2	4.7	8.5	2.7	3.4	-1.5	-5.7	-8.8
Eastern Europe																		
Bulgaria	1.1	11.1	13.1	1.8	6.2	8.1	3.5	8.7	8.4	7.0	7.0	7.4	9.6	5.6	2.0	8.1	-1.0	0.1
Hungary	4.3	6.2	4.3	2.6	1.0	5.2	8.1	6.8	5.1	4.9	6.5	5.8	10.8	3.0	-3.2	7.1	-1.9	-6.7
Poland	3.7	2.3	3.3	4.4	8.1	5.7	8.6	7.9	11.0	5.2	4.2	3.4	5.5	3.1	4.0	3.8	2.4	4.7
German Democratic Republic	-4.7	1.0	6.1	-1.7*	1.5	6.2	5.2	6.2	6.2	5.6	4.5	5.4	6.0	4.4	-3.3	3.5	1.2	-5.4
Romania	2.1	4.1	11.6	4.4	8.1	13.9	13.9	7.0*	6.5*	6.6	12.3	10.1	8.0	7.3	6.7	1.7	8.9	3.6
Czechoslovakia	7.7	5.5	5.5	6.3	5.1	5.4	9.3	15.4	17.2	5.5	5.2	5.7	4.9	5.0	1.0	2.1	3.2	-1.0
Total Eastern Europe	7.2	4.6	6.2	5.5*	5.7	6.5	8.4*	8.4*	9.1*	5.5	7.4	7.0	6.5	4.5	1.2	4.6	2.1	-0.2
Total Europe	2.1	-4.1	5.1*	4.0*	-3.0	7.9*	7.5*	4.7*	8.1*	5.5	4.8	5.2	8.0	3.2	2.9	0.5	-2.4	-4.9
USSR	5.3	3.9	2.3*	5.0	4.1	3.6*	8.0	8.0	6.3	8.0	6.2	4.0	4.4	5.4	3.0	1.0	2.5	2.5
United States	-3.8	-11.0	3.2	-6.3	-6.5	10.7	-4.1	0.7	7.8	-0.4	2.7	6.4	3.9	2.1	3.0	5.0	-5.5	5.7

a/ Source: 1 Quarterly Bulletin of Steel Statistics for Europe, 1972, Vol. XXIII, No. 4.

2 Monthly Bulletin of Statistics, September 1973.

3 Table 1.

4 Economic Survey of Europe.

b/ The totals are arithmetic means.

c/ Source (4) in percentages.

d/ Manufacturing industries including mines.

e/ Including electric-furnace ferro-alloys.

f/ Excluding ferro-alloys.

g/ Ingots only.

TABLE 3

WINTER TEMPERATURES, IN °C
(average)

Region and station	IV Quarter 1971 + I Quarter 1972			I Quarter 1972		
	actual	Difference from		actual	Difference from	
		average 1931-1960	same period a year before		average 1931-1960	same period a year before
Northern Europe	1.4	+ 0.8	+ 0.6	- 0.7	+ 1.5	+ 0.4
North Western Europe	6.7	+ 0.9	+ 0.4	5.2	+ 1.0	+ 0.2
Western Europe	5.9	+ 0.8	+ 0.5	4.8	+ 1.2	+ 1.2
Uccle (Belgium)	6.3	+ 0.3	+ 0.5	5.5	+ 0.8	+ 1.5
Paris						
Central Europe	5.6	+ 1.0	+ 1.1	4.2	+ 1.3	+ 1.3
Essen	3.8	+ 1.0	+ 0.6	1.6	+ 0.8	+ 0.9
Leipzig	3.2	+ 1.4	+ 1.8	1.9	+ 1.9	+ 3.3
Salzburg	4.0	+ 1.3	+ 2.2	3.2	+ 2.0	+ 4.1
Zurich						
Eastern Europe	- 3.5	- 0.3	- 1.0	- 5.9	+ 0.7	- 1.0
Leningrad	1.6	+ 0.5	+ 0.1	- 1.5	+ 0.2	- 0.2
Warsaw	3.3	+ 0.1	- 1.0	1.4	+ 1.0	- 0.5
Bucharest						
Southern Europe	8.7	+ 0.4	+ 0.7	6.9	- 0.2	+ 0.5
Madrid	11.7	...	+ 0.9	11.0	...	+ 2.2
Rome	12.0	- 0.5	- 0.4	10.0	- 0.2	- 0.5
Athens						

Sources: World Meteorological Organization, Climatological Normals (CLINO) for Climate and Climate Ship Stations for the Period 1931-1960, Geneva 1967; US Department of Commerce, Monthly Climatic Data for the World, Vol. 22, Asheville (USA) 1971, Vol. 23 (1972); national sources.

TABLE 4

INTERNAL DELIVERIES OF HARD COAL TO MAIN CONSUMING SECTORS IN EUROPE
(Millions of metric tons)

Region and Country	Total			Of which											
				Coke ovens			Thermal Power Stations			Industry			Households and small consumers		
	1970	1971	1972	1970	1971	1972	1970	1971	1972	1970	1971	1972	1970	1971	1972
<u>Centre and North-West of Europe</u> <u>- Major Coal Producers</u>															
Germany, Fed. Rep. of	114.2	109.0	99.9	51.9	49.1	44.7	33.6	36.1	32.0	10.5	8.1	9.2	3.8	2.8	2.4
Belgium	18.8	15.7	16.2	10.0	8.5	9.4	2.5	2.1	2.0	0.7	0.6	0.5	4.2	3.1	3.0
France	52.5	48.0	41.3	18.6	16.0	15.0	9.1	8.9	6.7	7.2	5.6	5.1	6.7	5.5	4.9
Netherlands	8.0	5.2	4.3	2.6	2.3	2.7	1.8	0.6	0.4	0.4	0.2	0.1	1.3	0.7	0.4
United Kingdom	155.6	147.8	124.3	28.2	26.7	23.3	75.8	79.0	67.7	19.1	15.7	10.9	20.6	17.7	15.6
Total	349.1	325.7	286.0	113.3	102.6	95.1	122.8	126.7	108.8	37.9	30.2	25.8	36.6	29.8	26.3
<u>Others</u>															
Austria	3.3	2.7	2.8	2.5	2.2	2.3	0.1	-	-	0.1	0.1	0.1	0.4	0.2	0.2
Ireland	1.3	1.1	1.0	-	-	-	-	-	-	0.7	0.7	0.7	0.5	0.4	0.3
Luxembourg	0.1	0.2	0.3	-	-	-	-	-	-	0.1	0.2	0.3	-	-	-
Switzerland	0.5	0.3	0.3	-	-	-	-	-	-	0.2	0.1	0.1	-	0.1	-
Total	5.2	4.3	4.4	2.5	2.2	2.3	0.1	-	-	1.1	1.1	1.2	0.9	0.7	0.5
<u>Northern Europe</u>															
Denmark	3.3	2.1	2.0	-	-	-	2.8	2.0	1.7	0.1	-	-	0.1	0.1	0.1
Finland	2.8	2.6	2.8	-	-	-	1.3	1.1	1.2	1.2	1.2	1.2	0.1	0.2	0.3
Norway	0.8	0.9	0.8	0.4	0.4	0.4	-	-	-	0.3	0.3	0.3	0.1	0.1	0.1
Sweden	1.7	1.5	1.0	0.8	0.6	0.7	-	-	-	0.4	0.3	0.3	0.1	-	0.1
Total	8.6	7.1	6.6	1.2	1.0	1.1	4.1	3.1	2.9	2.0	1.8	1.8	0.4	0.4	0.6
<u>Southern Europe</u>															
Spain	14.2	14.2	14.0	5.4	5.7	5.8	5.0	3.8	4.0	3.0	4.2	4.1	0.3	0.2	0.2
Greece	0.2	0.3	0.5	-	-	-	-	-	-	0.1	0.1	0.1	-	-	-
Italy	12.5	12.0	12.0*	9.5	9.3	9.3*	1.1	1.3	1.3*	0.4	0.4	0.4*	0.5	0.8	0.8*
Portugal	0.9	0.6	0.6	-	-	-	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2
Turkey	4.8	4.6	4.6	2.0	2.1	2.2	1.0	1.2	1.0	0.2	0.1	-	0.3	0.2	0.3
Yugoslavia	2.3	2.7	2.5	1.7	1.7	1.7	0.1	0.2	0.2	0.2	0.5	0.3	-	-	-
Total	34.9	34.4	34.2*	18.6	18.8	19.0*	7.5	6.7	6.7*	4.2	5.6	8.8*	1.3	1.4	1.5*
Total Western Europe	397.8	371.5	331.2*	133.6	124.6	117.5*	134.5	136.5	118.4*	45.2	38.7	37.6*	39.2	32.3	28.9*
<u>Eastern Europe</u>															
Bulgaria	5.4	5.9	6.0	-	-	-	2.5	2.6	2.6	2.2	2.9	3.0	0.1	0.1	0.1
Hungary	6.1	5.7	5.3	1.0	1.4	1.0	1.8	1.8	1.9	0.8	0.5	0.7	0.8	0.4	0.6
Poland	112.7	115.3	119.9	19.9	20.3	20.7	24.4	25.0	28.4	32.2	33.6	35.4	22.6	23.1	22.3
German Democratic Republic	10.0*	10.2*	10.4*	4.4*	4.5*	4.6*	4.2*	4.2*	4.2*	0.2*	0.2*	0.2*	1.1*	1.2*	1.3*
Romania	6.6	7.5	7.4	2.0	2.0	1.4	2.6	3.0	3.0	0.6	0.1	0.2	0.3	0.2	0.2
Czechoslovakia	29.8	30.8	30.1	14.0	14.3	14.6	4.4	4.7	6.1	8.6	8.9	6.8	0.9	1.1	1.0
Total Eastern Europe	170.6*	175.4*	179.1*	41.3*	42.5	42.3	39.9	41.3	46.2	44.6*	46.2*	46.3*	25.8*	26.1*	25.5*
Total Europe	568.4*	546.9*	510.3*	174.9*	167.1*	159.8*	174.4*	177.8*	164.6*	89.8*	84.9*	83.9*	65.0*	58.4*	54.4*

TABLE 5
PRODUCTION OF HARD COAL, BROWN COAL, PATENT FUEL AND BROWN-COAL BRIQUETTES
(in million t and percentage distribution)

REGION AND COUNTRY	HARD COAL				BROWN COAL				PATENT FUEL				BROWN-COAL BRIQUETTES			
	1970	1971	1972	Production in 1972 as % of total output in 1972	1970	1971	1972	Production in 1972 as % of total output in 1972	1970	1971	1972	Production in 1972 as % of total output in 1972	1970	1971	1972	Production in 1972 as % of total output in 1972
<u>Centre and North-West of Europe</u>																
- Major Coal Producers																
Germany, Federal Republic of	111.4	111.1	102.7	21.5	107.8	104.5	110.4	18.3	3.7	2.7	2.4	23.8	9.6	7.6	9.5	11.2
Belgium	11.4	11.0	10.5	2.2	-	-	-	-	0.7	0.6	0.5	4.9	-	-	-	-
France	57.8	53.9	50.6	6.4	2.8	2.8	3.0	0.5	4.3	3.7	3.4	35.7	-	-	-	-
Netherlands	147.5	145.4	121.8	25.3	-	-	-	-	0.9	0.6	0.5	4.3	-	-	-	-
United Kingdom	-	-	-	-	-	-	-	-	1.2	1.4	1.5	12.5	-	-	-	-
Total	312.2	309.2	268.5	56.2	110.6	107.3	113.4	18.8	10.8	9.6	6.1	64.2	9.6	7.6	6.8	11.2
<u>Others</u>																
Austria	-	-	-	-	3.7	3.8	3.0	0.6	-	-	-	-	-	-	-	-
Ireland	0.1	0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	0.1	0.1	0.1	-	3.7	3.8	3.8	0.6	-	-	-	-	-	-	-	-
<u>Northern Europe</u>																
Denmark	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
Norway	0.5	0.4	0.5	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Sweden	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	0.5	0.4	0.5	0.1	0.1	-	-	-	-	-	-	-	-	-	-	-
<u>Southern Europe</u>																
Spain	10.8	10.7	11.1	2.3	2.8	3.1	3.1	0.5	0.2	0.2	0.2	1.9	-	-	-	-
Greece	-	-	-	-	7.9	10.9	11.1*	1.8	0.1	0.1	0.1	1.0	-	-	-	-
Italy	0.3	0.3	0.2	-	1.4	1.3	1.2	0.2*	-	-	-	-	-	-	-	-
Portugal	0.3	0.3	0.3	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Turkey	4.6	4.6	4.6	3.0	4.0	4.2	4.8	0.8	0.1	-	-	-	-	-	-	-
Yugoslavia	0.6	0.7	0.6	0.1	27.8	30.2	30.3	5.0	-	-	-	-	-	-	-	-
Total	16.6	16.6	16.8	3.5	43.9	49.7	50.5	8.3	0.4	0.3	0.3	7.0	0.2	0.1	0.1	1.2
Total Western Europe	329.4	326.3	285.9	59.8	199.3	160.8	167.7	27.7	11.2	9.3	6.4	13.1	9.8	7.9	6.9	11.4
<u>Eastern Europe</u>																
Bulgaria	0.4	0.4	0.4	0.1	28.8	26.6	26.9	4.5	-	-	-	-	-	-	-	-
Hungary	4.2	3.9	3.7	0.6	23.7	23.5	22.2	3.7	-	-	-	-	-	-	-	-
Poland	140.1	145.5	150.7	31.6	32.8	34.5	38.2	6.3	1.3	1.3	1.1	16.9	-	-	-	-
German Democratic Republic	1.0	1.0	1.0	0.2	260.6	262.8	248.5	41.1	-	-	-	-	-	-	-	-
Romania	5.9	7.1	8.1*	1.7*	14.1	13.8	16.5	2.7	-	-	-	-	-	-	-	-
Czechoslovakia	28.2	28.8	27.9	5.8	81.3	84.2	84.9	14.0	-	-	-	-	-	-	-	-
Total Eastern Europe	179.8	186.7	191.8*	40.2*	441.3	445.4	437.2	72.3	1.3	1.6	1.7	16.8	0.4	0.3	0.3	6.8
Total Europe	509.2	513.0	477.7*	100	599.6	606.2	604.9	100	12.7	10.9	10.1	100	10.1	8.2	6.9	17.2
USSR	459.7	443.4	451.1	-	144.7	150.1	152.9	-	1.4	1.4	1.5	-	-	-	-	-
United States of America	596.8	599.6	555.2	-	5.0	6.4	6.7	-	-	-	-	-	-	-	-	-

a/ Including under brown coal briquettes.

b/ Including patent fuel.

TABLE 6
OUTPUT PER MANSHIFT UNDERGROUND (HARD COAL)
(in kg, annual averages and index numbers)

Year	GERMANY Fed. Rep.	BELGIUM	SPAIN ^{a/}	FRANCE	HUNGARY	ITALY	NETHERLANDS	POLAND	UNITED KINGDOM	CZECHOSLOVAKIA ^{b/}	TURKEY	YUGOSLAVIA
1964	2 614	1 763	1 067	2 046	1 518	2 532	2 140	2 078	2 528	1 686	823	828
1970	3 755	2 630	1 430	2 643	1 964	2 580	3 108	3 100	3 393	2 639	865	...
1971	3 828	2 623	1 421	2 626	1 918	2 480	3 184	3 200	3 380	2 660	750	...
1972	4 015	2 638	1 474	2 769	1 944	2 750	3 131	3 300	3 381	2 722	1 070	...
						INDEX (1964 = 100)						
1970	144	149	134	129	129	102	145	149	134	157	105	...
1971	146	149	133	128	126	98	149	154	134	158	91	...
1972	154	150	138	135	128	109	146	159	134	161	130	...

^{a/} Per day.

^{b/} The figures cover the Ostrava-Karvina hard-coal field only (accounting for 80 per cent of total output in Czechoslovakia).

TABLE 7
UNDERGROUND EMPLOYMENT IN HARD-COAL MINES
 (in '000 men on books and percentage change)

Annual average

Country	End 1970	End 1971	End 1972	$\frac{1972}{1971}$ %
Germany, Federal Republic of	138	135	126	- 7
Belgium	29	27	25	- 7
Spain	33	33	33	+ 0
France	66	60	54	- 10
Hungary	8	8	8	+ 0
Italy	0.8	0.7	0.6	- 14
Ireland	0.6	0.4	0.3	- 25
Netherlands	7	6	5	- 17
Poland	208	209	213	+ 2
Romania <u>a/</u>	13	16*	19*	+ 19*
United Kingdom	196	192	185	- 4
Czechoslovakia	48	47	46	- 2
Turkey	14	19	15	- 21
Yugoslavia	2*	2*	2*	+ 0*
Total Europe	764*	755*	732*	- 3.0*

a/ Including brown-coal mines.

TABLE 8

STOCKS OF HARD COAL AT PITHEAD IN EUROPE

END OF PERIOD

('000 t)

Country	December 1970	December 1971	December 1972
Germany, Federal Republic of	3 536	6 078	8 683
Belgium	215	3 961	472
Denmark	-	-	-
France	5 992	4 797	5 146
Ireland	3	10	-
Italy	12	37	-
Luxembourg	-	-	-
Netherlands	285	615	630
United Kingdom	7 210	10 393	11 109
TOTAL EUROPEAN COMMUNITY	17 253	22 326	26 040
Spain	1 971	1 323	1 163
Hungary	100*	100*	100*
Norway	79	57	40
Poland	837	1 998	1 233
Portugal	353	307	...
Czechoslovakia	2 061	2 243	2 254
Turkey	33	6	10

TABLE 9

STOCKS OF COKE AT COKE-OVENS AND AT IRON AND STEEL WORKS

End of Period

('000 t)

Country	At coke ovens			At iron and steel works <u>a/</u>		
	December 1970	December 1971	December 1972	December 1970	December 1971	December 1972
Germany, Federal Republic of	485	5 404	8 745	1 467	1 104	1 037
Belgium	151	236	204	264	245	175
Denmark	-	-	-	32	31	8
France	242	560	698	915	754	...
Ireland	-	-	-	-	-	-
Italy	400	734	667	305	129	...
Luxembourg	-	-	-	160	156	166
Netherlands	30	75	85	140	365	175
United Kingdom	302	1 313	1 906	621	942	760
TOTAL EUROPEAN COMMUNITY	1 610	8 322	12 305	3 904	3 726	3 100*
Spain	179	310	414	51	-	-
Finland	13	23	15	165	277	247
Norway	32	81	63	159 ^{b/}	122 ^{b/}	103 ^{b/}
Poland	35	39	56	540	705	820
Czechoslovakia	96	99	117	162	188	251

a/ Stocks at industrial consumers at end of year are shown as stocks at iron and steel works.

b/ Including stocks held by importers at end of year.

TABLE 10

TRADE IN HARD COAL AND PATENT FUEL, AFFECTING EUROPE

(million t)

a/ Exports from other countries than those enumerated are nil or less than half the appropriate unit.

b/ Excluding shipments to United States armed forces.

c/ Excluding deliveries from Spitzbergen.

d/ 1970 1971 1972
(million t)

Imports from:

German Democratic Republic	0.3	0.4	0.4
Hungary	-	0.1	-

TABLE 11
TRADE IN COKE AFFECTING EUROPE
('000 t)

TABLE 12

EUROPEAN TRADE IN BROWN COAL AND BROWN-COAL BRIQUETTES
('000 t)

Exporter	Total exports			of which:			To
	1970	1971	1972	1970	1971	1972	
			Brown coal				
Germany, Federal Republic of	12	12	15	12	12	15	France Netherlands
Austria	8	6	5	8	6	5	Germany, Federal Republic of
France	24	19	23	23	15	22	Spain Italy
Poland	3 972	3 561	4 106	3 928	3 561	4 106	German Democratic Republic
German Democratic Republic	50	-	-	50	-	-	Germany, Federal Republic of
Czechoslovakia	1 094	1 201	1 235	1 059	1 154	1 186	Germany, Federal Republic of Austria German Democratic Republic
Yugoslavia	155	214	589	80	86	529	Austria Italy
				64	59	54	
Total Europe	5 315	5 013	5 973	5 256	4 918	5 933	Above countries
			Brown coal briquettes				
Germany, Federal Republic of	937	712	619	279	189	164	Austria Belgium France Italy Luxembourg Netherlands Switzerland
				42	34	30	
				288	243	222	
				132	95	77	
				70	57	53	
				32	22	17	
				90	72	53	
German Democratic Republic	3 786	2 760	2 486	1 545	1 028	566	Germany, Federal Republic of Austria Denmark Hungary Poland Czechoslovakia
				255	251	235	
				66	36	34	
				445	525	434	
				310	6	3	
				930	787	671	
Czechoslovakia	41	31	20	27	21	15	Germany, Federal Republic of Austria
				9	7	4	
Total Europe	4 764	3 503	3 125	4 520	3 373	2 578	Above countries

